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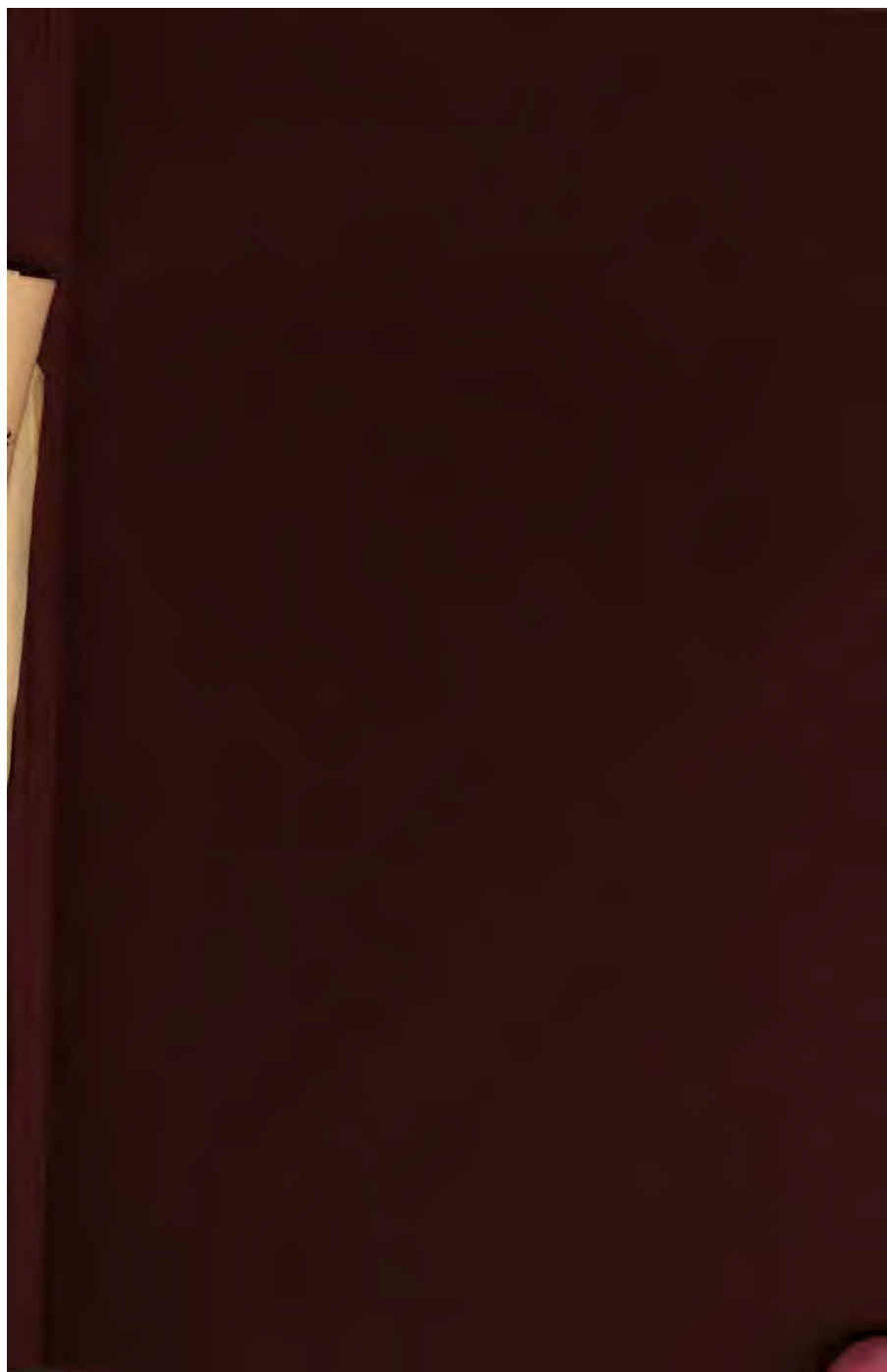
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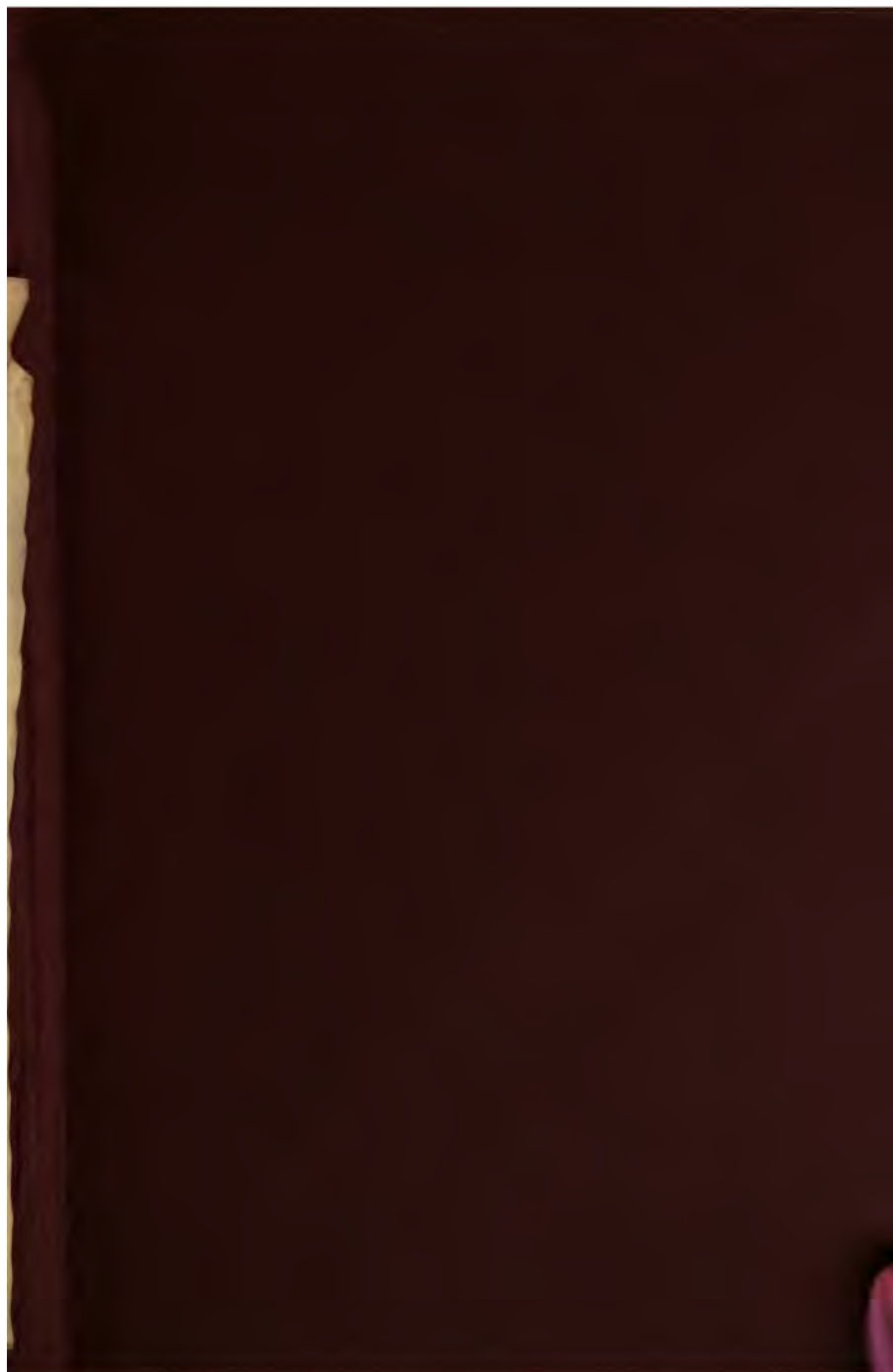
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SHIPPING

In Its Relation to Our Foreign Trade

By

EMORY R. JOHNSON

*Professor of Transportation and Commerce
University of Pennsylvania*

AND

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University of Pennsylvania*

Being the Seventh
Unit of a Course
in Foreign Trade

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Course in Foreign Trade

Edward Ewing Pratt - - - *Director*

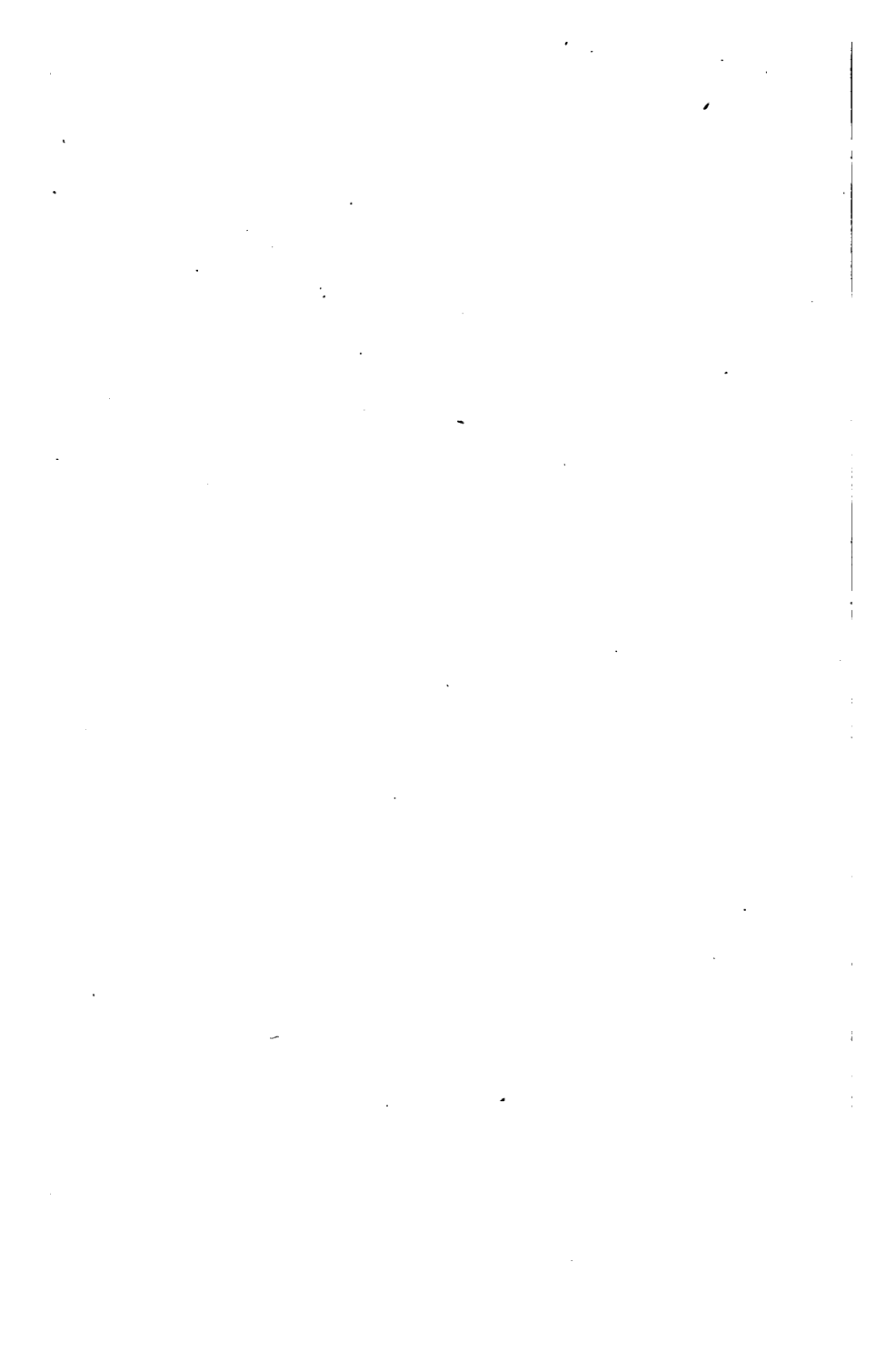
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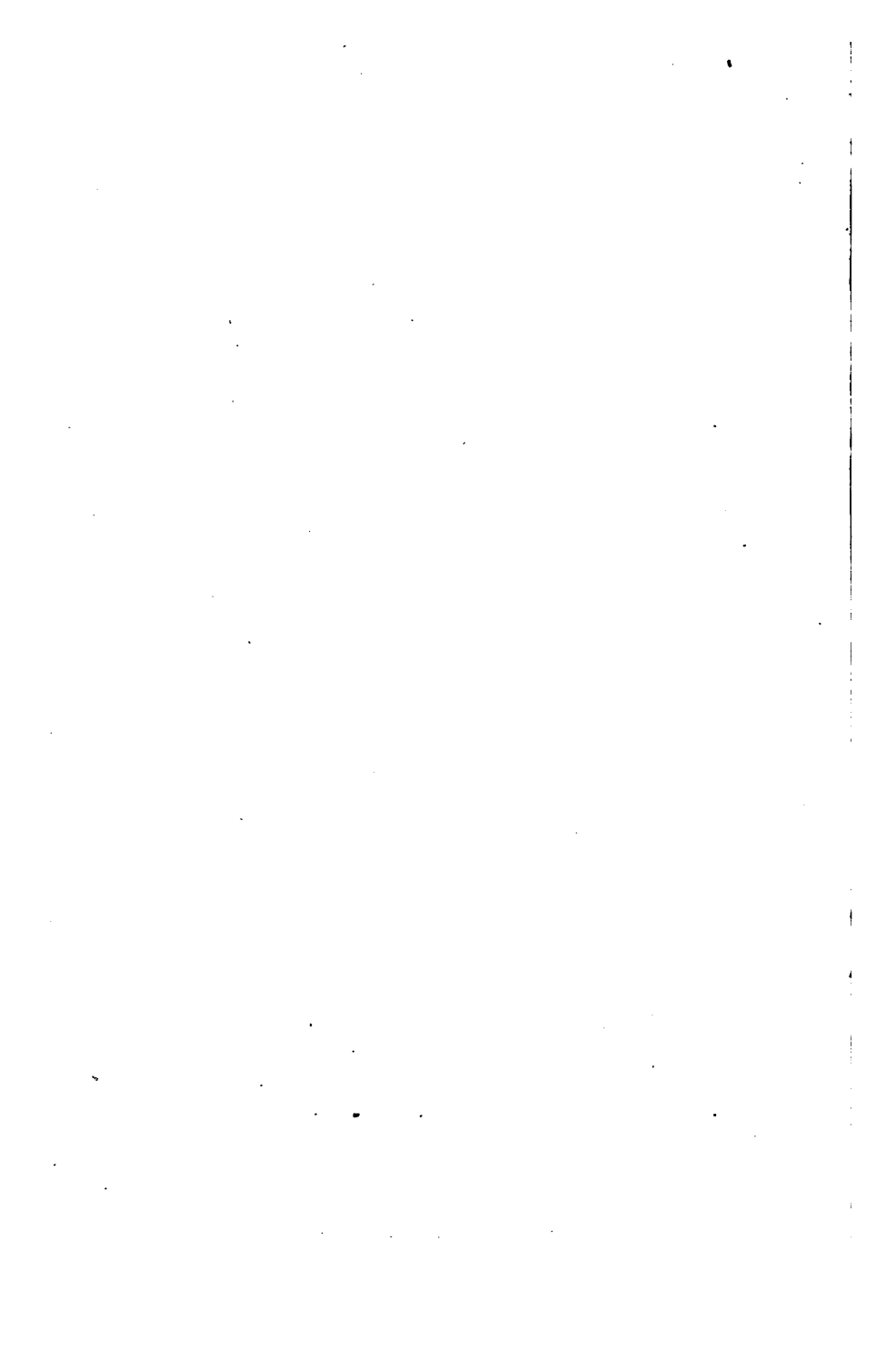
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The Carriers of Commerce

A SHIP is the symbol of commerce known in all countries and in all languages. It is the universal link between nations, the civilizer of the world, the ambassador of trade in every century. It is no accident that the world's greatest trading nation is also the world's greatest maritime nation.

The carriers of commerce have enormously multiplied and developed since the pioneer ships of the Phoenician merchants first ventured the seas. Steam and electricity and other forms of power have come; commerce no longer must await the will of the wind. The stage coach has given way to the locomotive, and railroads have opened up vast continents, joining rail lines to water lines, bringing the most remote inland hamlet into touch with every foreign market. Our lines of communication and transportation have become truly international.

To use this vast world equipment to the best advantage is not only the privilege but the duty of every trader engaged in overseas business. Such use must be founded upon knowledge—knowledge of the principles which underly shipping, of the organization of the industry, its services and methods. This is foundation material for the foreign trader. A mastery of it gives a new grip to his mastery of business.



I

Overseas Traffic and Shipping

OCEAN shipping is a dominant factor in the transportation of our foreign commerce. The water-borne export traffic of the United States during the fiscal year 1915 was valued at \$2,466,356,000 and comprised more than 89 per cent. of the country's entire export trade. Less than 11 per cent. of the exports were carried to adjacent foreign markets on land. Though the railroad is now claiming a larger portion of our export traffic than ever before, the geographical position of the United States makes it impossible that the railroad shall ever take the place of the ocean-going vessel in foreign trade.

In the transportation of our export traffic overseas, including the carrying of passengers and the international mails, 46,885,000 net tons of shipping cleared from United States ports in 1915. *Our Small Share in Our Own Carrying Trade* American vessels accounted for 29 per cent. of the tonnage of clearances, but only 11.8 per cent. of the value of our overseas exports was carried in American bottoms. The small share which vessels of national registry hold in the carrying

trade of the United States has long been a matter of concern to far-sighted American business men.

The efficient operation of ocean carriers depends upon both inbound and outbound cargoes. The combined traffic of imports and exports, and the tonnage of vessel entrances and clearances, need to be considered if we are to obtain a comprehensive view of our oversea commerce.

The records of our combined foreign trade (imports and exports) show that in 1915 only 14.3 per cent. of the trade was carried in American vessels; and that only 29 per cent. of the vessel entrances and clearances in the foreign trade were made by vessels registered under the United States flag. Yet the vast total shipping engaged in that trade comprised vessel entrances and clearances aggregating 93,595,000 net tons. The American share was somewhat larger in 1915 than its average for the preceding decade. This better showing for 1915 is largely due to the influence of war conditions, which caused many foreign vessels to withdraw from our carrying trade and caused others to register under the American flag.

For 50 years prior to the outbreak of the European War there was a gradual decline in the percentage of American foreign trade

transported in American vessels. In 1860 the proportion was 66.5 per cent. In 1914 it was only 9.7 per cent. In 1860 American vessels made 71 per cent. of the entrances and clearances; in 1914, 26 per cent. In 1914 British vessels transported more than five times as much exports and imports through American ports as did American vessels; and German ships multiplied our record by nearly one and one-half.

The total registered merchant marine engaged in the foreign trade of the United States on June 30, 1915, had a gross tonnage of 1,862,714 tons—an increase of 796,426 tons having come since the outbreak of the European War and the passage of the emergency ship registry act of August

18, 1914. The transfers from foreign flags aggregated 523,361 tons. The remainder of the in-

*The Size of
Our Overseas
Merchant Marine*

crease represents a transfer of American vessels formerly engaged in the coastwise and Great Lakes trade. The rapid decline of the American merchant fleet engaged in foreign trade—from 2,496,894 gross tons in 1861 to 782,517 in 1910—has temporarily been checked. Whether the increase will continue will depend, in part, upon Congressional action.

On June 30, 1915, 305 ocean-going vessels

of 3,000 gross tons or over were registered under the flag of the United States, as compared with 3,063 under the flag of Great Britain and 544 under that of Germany. Corresponding figures for other maritime countries were: France, 228; Japan, 225; Italy, 211; the Netherlands, 189; and Norway, 116. Most of the American sea-going vessels are of relatively small tonnage; only 23 have a gross tonnage of from 7,000 to 10,000 tons each and but 14 exceed 10,000 tons. The largest American vessel is the *Minnesota*, which has a gross tonnage of 20,718 tons.

There are many different types of ocean carriers. Some vessels are designed to carry miscellaneous general cargo, others are highly specialized. In general, vessels are constructed to conform to the diverse business requirements of different ocean routes, to the needs of the passenger and mail traffic, the exactions of governmental regulations and statutes, the rules of marine insurance classification and the financial abilities of vessel owners.

Ocean vessels may be grouped, according to their motive powers, into sailing vessels, steamships, vessels fitted with internal combustion engines, and unrigged craft.

Sailing vessels now comprise but 11 per

cent. of the world's entire merchant marine and 20.7 per cent. of the registered tonnage of the United States. American sailing vessels have had a long and brilliant past. Before the slow advent of steam, no type of craft was better known throughout the world than the American schooner and square-rigged "clipper ship." Sailing vessels have the advantage of cheaper construction, lower operating costs and larger net capacity, but they have been generally forced to yield before the competition of the steamship, with its more regular movement and greater average speed. Maritime canals, too, have hastened the decline of the sailing vessel. The absence of regular winds in the Red Sea prevented sailing vessels from using the Suez Canal route, and the absence of regular winds in Panama Bay will similiarly handicap the operation of sailing vessels through the Panama Canal.

*Ocean Carriers
Classified
According to
Motive Power*

The sailing vessel has found its chief employment in recent years in the transportation of low-grade bulky commodities, in pioneer commerce with the newer markets of the world before the trade is sufficient in volume and regularity to justify the establishment of regular steamship lines, and in the coastwise trade which, in the case of the United States, is

*Where the
Sailing Vessel
Operates*

not open to vessels of foreign construction and ownership.

Sailing vessels may be grouped, according to the nature of their rig and number of masts, into: (1) square-rigged vessels such as full-rigged "ships" and brigs, (2) fore-and-aft rigged vessels such as the American schooner and the sloop, (3) vessels having both fore-and-aft and square-rigged sails such as the brigantine, bark and barkentine.

Steamers are now of chief importance in the overseas traffic. More than 71 per cent. of the gross tonnage of American deep-sea vessels are steamships. Of the combined net tonnage of the world, as reported by Lloyd's Association, 28,159,895 tons are of steam and only 3,532,561 of sail tonnage. The first vessel to cross the Atlantic under steam was the *Savannah*, the trip being made in 1819, 12 years after the successful trial of Fulton's

*Steam Tonnage
Dominant In
Ocean Traffic*

Clermont. It was not until 1838 that steamers were expressly built for the overseas trade; these were equipped with side paddles. The screw propeller was invented in 1836 but was not generally adopted for ocean navigation until 26 years later. Twin propellers began to be used in 1880, and some of the largest transatlantic steamers have, in recent years, been fitted with four propeller shafts.

From the standpoint of propelling machinery, merchant steamers fall into three main groups: (1) those fitted with reciprocating steam engines, (2) those equipped with turbine engines, (3) those having both reciprocating and turbine steam engines. Most of the steamers engaged solely or largely in the transportation of freight cargoes have reciprocating engines, turbines being used by some of the large passenger liners of the north Atlantic.

Marine internal combustion engines are principally of two kinds: Gas engines and internal combustion oil engines. Thousands of small craft have been fitted with gas engines, but such engines have thus far been of relatively slight importance in the overseas trade. There are two distinct

types of marine gas engines: those using gasoline, naphtha, kerosene or other light refined oils which are expensive and not entirely safe when carried in large quantities; and those using producer gas. Engines of the second type must be equipped with a producer gas plant which converts fuel into gas. They have the advantage of lower fuel costs, but afford less saving in cargo space.

*Internal
Combustion
Engines in
Ocean Vessels*

Progress is being made in the adaptation of the internal combustion oil engine to deep-

sea navigation, particularly the so-called Diesel marine engine. Diesel engines may be operated with crude petroleum, coal oils, residual oils remaining in the refineries after the lighter oils have been distilled, or almost any commercially available burning oils. The oil is sprayed directly into the cylinders where it is burned without being converted into gas. The necessary heat is obtained from the pressure of the piston in the cylinders, no electric spark being required. As compared with coal burning steamers, vessels fitted with Diesel oil engines have the advantage of increased cargo space, greater deadweight capacity and reduced operating costs.

Various internal combustion marine oil engines, differing somewhat from the Diesel, have been invented. Such are the so-called vaporizer engines which are fitted with local means of ignition and require the fuel oil to be converted into vapor when forced into the cylinder. But none has been so widely adopted as the Diesel engine, which was invented in 1895 and was first used for marine propulsion in 1902. The total tonnage of vessels equipped with internal combustion engines documented under the flag of the United States for use on the high seas on June 30, 1915, was but 16,374 gross tons. In Europe an increasing number of large

TYPES OF OCEAN CARRIERS



Trunk-Decked Vessel

Photo by Brown & Dawson



Whaleback Steamer

Photo by Edwin Levick



Full-Rigged Ship

Photo by Edwin Levick

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as well as small merchant vessels are being fitted with Diesel engines.

Unrigged craft are better adapted to the coastwise and inland traffic than to the overseas trade, because the absence of propelling machinery exposes them to the danger of storms; yet on June 30, 1915, the gross tonnage of sea-going barges documented under the American flag aggregated 132,124 tons. Sea-going barges, sometimes called "schooner barges," are towed in fleets—though they are usually fitted with short masts and a limited number of sails for emergency use in case they break away from the tug or towing steamer. They are especially adapted to the cheap transportation of bulky low-grade commodities over routes that are generally free from storms. A number of large sea-going tank barges have been constructed for the transportation of petroleum. One advantage of the use of barges is that while the barges are loading the tug may be employed in other towing operations. Coal or other bulky freight can be moved in tows of barges with greater certainty and regularity of movement than it is possible for sailing vessels to maintain. The disadvantages of the barge are its helplessness in a storm and the high marine insurance rates assessed on the barge and its cargo.

*Barges in
Overseas Trade*

Ocean vessels may be further classified according to the number and arrangement of their decks and superstructures. Small ocean carriers are two-decked vessels, that is, they have two, or the equivalent of two, full-length decks. On the upper deck may be the bridge, poop, forecastle or other superstructures or part-length decks. Should the upper full-length deck be raised somewhat between the bridge and poop, the vessel is called a raised quarter-decker; and should the bridge be extended forward somewhat, leaving an open space between the bridge and forecastle which is awash when the seas are high, it is called a well-deck vessel. Large vessels have three full-length decks, on the upper of which may be any number of superstructures and part-length decks. If each of the three decks is of equal strength and the space under them fully inclosed, the vessel is a regular three-decker; if the upper deck is fitted with a "tonnage opening" of dimensions and design that satisfy the measurement authorities, it is called a shelter-deck vessel; if the upper deck is supported by framings which are somewhat lighter than those supporting the other decks, it is called a spar-decked vessel; and if the framings supporting the upper

*Ocean Carriers
Classified
According to
Deck Arrangement*

deck are still lighter, it is known as an awning-decked vessel. The spaces under the upper deck of any of these vessels, including those of the shelter-deck type, are fully closed when at sea and permit of the stowage of any form of dry cargo.

The largest type of ocean carriers have four or more full-length decks, or their equivalent. Such vessels, especially when engaged in the carriage of passengers as well as freight cargoes, may have several tiers of superstructures above the upper deck. They may also be known as shelter-deck vessels, provided the upper deck is fitted with a tonnage opening of required character. The purpose of the tonnage opening is to avoid complete measurement and obtain a low net register tonnage—the practise of the measurement authorities in Great Britain, Germany and recently also in the United States being to exempt from measurement the entire space between the shelter deck and the deck beneath. Very large passenger or combination passenger and cargo vessels have more than four full-length decks.

There are many types of specialized ocean carriers which are built to transport special kinds of freight or to serve some particular purpose. Trunk-decked vessels, which are especially adapted to the carrying of coal,

ore, grain or other bulky cargoes, are fitted with a trunk erection about seven feet high and half the width of the upper deck. Turret-decked vessels are fitted with a turret shaped erection, the sides of which gradually curve into the upper or so-called harbor deck. They are, also, used chiefly for the transportation of bulky cargoes, but since the immediate reason for the peculiar turret construction was to avoid complete measurement, none has been built since the revision of the British measurement rules. Whaleback vessels are used chiefly in the coal and grain trades, their upper deck being rounded and almost free of superstructures or deck obstructions.

*Specialized
Ocean Carriers*

Many self-trimming vessels have been constructed. They have large unobstructed holds and other arrangements designed to eliminate or reduce the amount of manual labor connected with loading, trimming and discharging bulk cargoes. Indeed, the trunk-decked, turret-decked and whaleback vessels are of the self-trimming type.

Tank steamers are used in large numbers in the overseas oil trade. The greater portion of each vessel is divided into separate oil compartments or tanks fitted with trunks so that every tank that may be used on a given voyage can be completely filled with

oil. The tank steamer may also have deep holds and certain additional space forward available for general freight cargoes, but its prime purpose is to transport oil in bulk.

At the Pacific Coast ports of the United States so-called "steam schooners" are employed in the coastwise lumber trade and some of them have entered the foreign trade. They are steamships built on the lines of a schooner but propelled by engines situated far aft. Their large cargo hold below decks and the unobstructed open deck space between the forecastle and bridge enable them to carry a maximum cargo of lumber.

Ocean carriers may be further classified or grouped according to the structural material of their hulls. It was during the era of wooden vessels that the United States was known in the overseas trade as

a great maritime power. Iron was first used for constructing ocean-going vessels in 1837-38

*Classification
According to
Structural Material*

but did not come into general use until after 1860. Steel began to be used on a large scale after 1880. "Lloyd's Register" for the years 1915-16 reports the world's tonnage of steel vessels of 100 tons or over to be 43,912, 311 tons, while the corresponding tonnage of

iron vessels was 3,533,146, and of wooden vessels 1,920,264.

Steel has made possible the construction of the leviathan combination passenger and freight steamers of the north Atlantic—the *Aquitania* with its 47,000 tons gross, the *Britannic* with its 50,000, the *Vaterland* with its 54,190, and the *Bismarck* with its 55,000 tons gross. The use of steel adds to the strength of a ship, and also to the safety of navigation and reduces the ratio of weight of vessel to load carried. Not only large passenger vessels but most small- and medium-sized cargo carriers are regularly built of iron or steel.

Ocean carriers may also be classified according to their uses or services, as will be explained later.

Many different tonnage units are employed in the overseas export trade. A clear understanding of the various terms is necessary.

**Tonnage and
Measurement**

Tonnage is of two general kinds: cargo tonnage, which expresses the quantity of cargo being shipped; and vessel tonnage, which expresses the size or capacity of the ship.

Cargo tonnage may be stated in four ways: (1) long tons of 2,240 pounds each, (2) metric tons of 2,204 pounds, (3) short tons of 2,000 pounds, or (4) measurement tons—usually

of 40 cubic feet. Long tons and measurement tons are most commonly used in the overseas export trade of the United States, the former usually in connection with cargoes shipped in terms of their weight and the latter in connection with light freight or general cargoes which are frequently shipped on the basis of the space which they occupy.

Vessel tonnage is expressed in four ways:

1. Displacement tonnage.
2. Deadweight tonnage.
3. Gross tonnage.
4. Net tonnage.

Displacement tonnage indicates the weight of the vessel or of the water displaced by it, and in the United States is expressed in terms of the avoirdupois ton of 2,240 pounds. It may be either "light displacement," which represents the vessel's weight when its crew and supplies are on board, but before any fuel, cargo or passengers have been loaded; or it may be maximum or full-load displacement, which represents the vessel's weight when fully loaded to its deep-load line. The light and maximum displacement tonnage of a vessel are computed at the time of its construction, when each vessel is supplied with an official displacement curve and scale from which the captain may ascertain its actual weight or

*Displacement
Tonnage*

displacement when loaded to any given draft.

A vessel's deadweight tonnage represents the maximum weight of cargo and fuel which it is able to carry when loaded to its deep-load line. It is the difference between its

Deadweight Tonnage light and maximum displacement tonnage and is, also, in case of the

United States, usually expressed in terms of the long ton. It is of special importance in the shipment of heavy bulky commodities or so-called deadweight cargoes such as coal and ore; and in the overseas traffic is often used as the basis for time charter rates. The actual deadweight on board a vessel may be roughly ascertained from the displacement scale and curve mentioned in the foregoing paragraph.

The gross register tonnage of a vessel is its total inclosed contents expressed in tons of 100 cubic feet, as ascertained by the measurement authorities of the vessel's home country. The measurement rules of the various maritime countries, however, differ as to the number of spaces which are measured, so that gross tonnage varies somewhat accord-

Gross Tonnage ing to the flag under which the vessel is registered. Moreover, it does not in practise represent the total inclosed cubical contents of a vessel, for various spaces

are specifically exempted from measurement. Under the rules of the United States as interpreted since September 5, 1914, the space under a shelter-deck fitted with a so-called tonnage opening is now exempted, so as to apply the same treatment to American vessels that has long been accorded to British vessels under the rules of Great Britain. The American rules exempt from measurement spaces in the forecastle, poop and bridge when not "permanently closed-in"; the double bottom, when not available for cargo, stores or fuel; water ballast tanks; any space between the frames and floor beams; passenger accommodations in tiers of superstructures over the first tier above the upper deck; hatchways up to one-half of 1 per cent. of the vessel's gross tonnage; galleys, bakeries, toilets and bathhouses located above decks; spaces above decks occupied by the ship's machinery or used for the working of the vessel; light and air and funnel space over the engine and boiler room to the extent that it is above the uppermost full-length deck (unless the vessel owner requests that it be measured); domes and skylights; companionways (except portions used as a smoking room), and ladders and stairways located in exempted spaces.

As a result of these exemptions, the gross

register tonnage of neither American nor foreign vessels represents the actual cubical contents of ocean carriers. Vessels using the Suez Canal route are given a more accurate gross tonnage which is ascertained in accordance with a special code of measurement rules formulated by an International Tonnage Commission in 1873. Vessels using the Panama Canal are required to be measured in accordance with a special code of "rules for the measurement of vessels for the Panama Canal" which was formulated in 1913.

A vessel's net register tonnage is more important than its gross register tonnage, for *Net Tonnage* net register is the basis of tonnage taxes throughout the world—sometimes of various port charges incurred by the vessel, and at times also of ocean charter rates. Theoretically, it should represent the cubical contents of the space available for cargoes and passengers expressed in tons of 100 cubic feet. In practise, however, it understates the real net capacity of a vessel, and varies according to the particular national measurement rules which are applied.

Net tonnage is ascertained by making certain deductions from the vessel's gross tonnage. The deductions made under the measurement rules of the United States include the spaces occupied by the ship's machinery

and fuel; those occupied by the crew and officers; those used for the working of the helm, capstan and anchor gear if below deck; those used for keeping charts, signals and other instruments of navigation; those occupied by the donkey engine and boiler if connected with the main pumps of the vessel and located below deck; by boatswain's stores; galleys, bakeries, toilets and bathrooms for the accommodation of the officers and crew if below deck; and spaces on sailing vessels for the stowing of sails not exceeding 2.5 per cent. of the gross tonnage.

The understatement of net tonnage results, first of all, from the fact that it does not include all permanently closed-in spaces, and, also, as ordinarily determined, from the rule applied in making deductions for propelling machinery and fuel bunkers. Since the fuel bunkers on many ocean vessels are not fixed permanently, but have movable partitions, a general rule aiming to deduct the average space occupied by fuel was adopted in Great Britain in 1854 and was later accepted in the United States and many other countries. This general rule, however, usually results in the deduction of considerably more than the average space actually occupied by propelling machinery. Indeed, the International Tonnage Commission adopted a stricter rule

when it formulated the Suez Canal measurement rules, and this was also done when the measurement rules were applied at the Panama Canal. The Suez and Panama net tonnage rules differ somewhat in detail, but the purpose of both, so far as practicable, is to arrive at a real net tonnage, and both result in a net tonnage for canal tolls in excess of the net register tonnage assigned to vessels by their respective countries.

II

Ocean Routes and Services

OVERSEAS transportation differs from railroad transportation in that ocean carriers do not own specific rights of way. They nevertheless have their trunk line routes and feeders, much as railroads have main lines and branches. There are eight important ocean trunk lines.

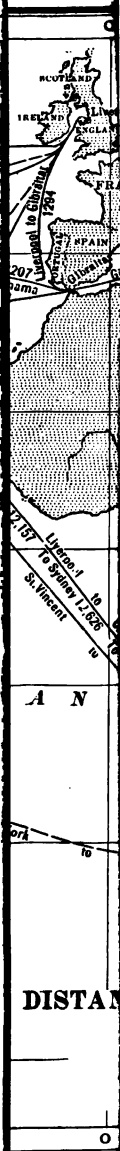
The first in importance is the North Atlantic route, which extends from the Atlantic and Gulf ports of the United States to the ports of western continental Europe and Great Britain. Over *The North Atlantic Route* this route a sixth or more of the world's shipping moves. It is the direct route between the principal commercial countries of the world. There is a heavy movement of passengers as well as of freight between these countries. The route is traversed by cargo carriers and by the world's largest and fastest passenger liners. During the winter and early summer this route crosses the Atlantic well to the northward and approximates the arc of a great circle, which is the shortest distance between two points upon the surface of a sphere. During the

summer, on account of the ice, the route is far to the south. The feeders of this North Atlantic trunk-line route reach the numerous Atlantic ports in Europe and the United States, and this trunk line is used not only by commerce between the United States and Europe but, to some extent, by the trade of the United States with Pacific countries, which trade is in part conducted via Europe.

The Mediterranean-Suez Canal route is the ocean trunk line second in importance. Its western termini are the ports of the eastern seaboard of the United States and western

The Mediterranean-Suez Canal Route Europe, and its eastern termini are the ports of the Mediterranean and those of eastern Africa, India, the Strait Settlements, the East Indies, the Philippines, China, Japan and Australasia. It, too, is fed by a large number of branch routes. Five thousand vessels, measuring over 18,000,000 tons net and over 25,000,000 tons gross, annually navigate this route to and from points beyond the Suez Canal. The Suez Canal tolls are 6.25 francs (\$1.206) per ton, net tonnage, and 10 francs for each passenger on board above twelve years of age and 5 francs for children from three to twelve years of age. Vessels in ballast pay a toll of 4.25 francs per ton.

The South African route, with which the



Suez route is obliged to compete for a portion of its traffic, is longer than the Suez route, but is without tolls and can be used by sailing vessels as well as steamers. The western termini of this route are the Atlantic and Gulf ports of the United States and the ports of western Europe. The Eastern termini are the ports of western, southern, and southeastern Africa and of Australia, New Zealand and occasionally of India, China, the Philippines and Japan.

*The South
African Route*

The Caribbean route differs from the other trunk lines in that it is a group of routes rather than one distinct trunk line. Vessels proceed from the Atlantic and Gulf seaboards of the United States and from Europe to the Caribbean. From there they follow many varying paths to the ports of the West Indies, Central America and the north coast of South America, some proceeding direct to their final destination and others stopping at various ports en route.

*The Caribbean
Route*

The South American route connects the Atlantic and Gulf ports of the United States and the ports of Europe with those of Brazil, Argentina and Uruguay, and the Pacific Coast ports of South America, Central America,

*The South
American Route*

Mexico, the United States, Hawaii and British Columbia. The opening of the Panama Canal, however, has diverted to the canal route all, or nearly all, of the steamers taking this route to Pacific ports. The saving in distance, except to the extreme southern portions of Chile, is sufficient to draw steamers away from routes via the Straits of Magellan. Sailing vessels, on account of the calms in the Bay of Panama, will seldom use the canal, and will find greater difficulty in competing against their steam rivals.

The North Pacific route connects the western ports of the United States and Canada with the main ports of Japan, Siberia, China, Corea and the Philippine Islands. The main trunk line follows the Great Circle route which skirts the Aleutian Islands, but some vessels take a more southerly route so as to call at Honolulu, although by doing so they increase by 800 miles the length of their voyage to or from Japan.

The Australasian or South Pacific route connects the western ports of the United States and Canada with New Zealand and Australia with usual stops en route at Honolulu, Samoa, Fiji or Tahiti. Although the traffic of this route has slowly increased it has, on

the whole, been lighter than that of any of the other routes.

The Panama Canal route may be considered an extension of the Caribbean route, for even before the opening of the canal much freight was transshipped to Pacific destinations by rail across the Isthmus of Panama and the Isthmus of Tehuantepec.

The permanent opening of the canal, *The Panama Canal Route* however, really creates a new trunk-

line route; for the canal will not only obtain such traffic as was formerly transshipped, but will divert some of the traffic which formerly moved via the South American, South African and Suez Canal routes. From the Atlantic and Gulf ports of the United States, oversea exports will move through the canal to the ports of western North and South America, Honolulu, the Philippines, Australia, New Zealand, Japan and China as far south as Hongkong. From Europe there will be a similar flow of traffic to the west coasts of North and South America; but the European traffic via Panama to and from New Zealand, Australia and Japan will be light. Europe's trade with the Philippines and the Asiatic continent will doubtless continue to move via the Suez and South African routes, because the Panama Canal does not reduce the length or time of voyages from Europe to these des-

tinations, and will, in normal times of peace, probably not possess sufficient other advantages to obtain more than a small portion of this competitive traffic.

The first merchant vessel passed through the Panama Canal on August 15, 1914. From then until the temporary closing of the canal on the 18th of September, 1915, a period of 13 months, it was used by 1,519 vessels, of 7,497,880 tons gross and 5,260,826 tons net, carrying 6,706,915 tons of cargo. War conditions resulted in an abnormal depression of all except the intercoastal or domestic portion of the canal's traffic. It was estimated when the canal tolls were established that about 10,500,000 net tons of shipping would pass through the canal annually during the early years of its operation, and that nearly 90 per cent. of this would be employed in international trade, while only 10 or 11 per cent. would be engaged in the intercoastal trade of the United States.

It is not to be supposed that all ocean carriers ply between definite termini or follow a particular route. A tramp vessel may journey over any or all of the trunk-line routes and many branch routes, and traffic requirements may make it commercially unprofitable for steamship lines to send their vessels back and

*Irregular
Steamship Routes*

forth over one route. The use made of triangular or other irregular steamship routes was well expressed by the United States District Court in the Government suit against the United States Steel Corporation as follows:

To reach Vancouver, the Steel Corporation was confronted by a railroad freight rate from Pittsburgh to Vancouver of \$18 per ton, while the English steel manufacturer could reach Vancouver on already established lines of steamers from Liverpool to Vancouver at \$7 per ton. When his steel reached Vancouver the English manufacturer paid one-third less of the preferential Canadian tariff than the American manufacturer.

The result of these adverse conditions was that after the Steel Company opened its warehouse at Vancouver, it found that it was impossible to do much business unless the Steel Company itself established a line of its own steamers from New York to Vancouver through the Straits of Magellan. The Products Company itself accordingly started such a line, which is the only one from New York to Vancouver. It has four steamers of its own in service and two chartered vessels.

These vessels call en route at many ports on the west coast of South America and Mexico, at some ports which have no regular steamship line. In addition to carrying the products of the Steel Corporation, they have "been carrying considerable quantities of material for other manufac-

turers in this country who had been unable to develop a business because of the lack of facilities."

In order to obtain return freight for their steamers the Products Company have to load them at Vancouver with lumber or coal for the Gulf of California; there they reload with copper matte for Dunkirk, France, and in France they take on chalk for New York.

The whole triangular trip occupies from seven to eight months and shows the hitherto unused methods and the continuous sustained effort that must be made to get and hold foreign trade. By like effort, trade suited to the varied needs of various countries has been built up.

The use of the trunk-line routes by sailing vessels is moreover modified by the prevailing winds, which in many instances prevent them from following the direct route of vessels propelled by engines.

Ocean freight services are of three principal kinds: (1) the tramp or chartered service, (2) the line service, and (3) the service of privately operated or industrial carriers.

*Ocean Freight
Services*

The ocean tramp service is rendered by vessels which stand ready to carry any form of cargo, not requiring a ship of specialized design, over any route and to any destination not prohibited by physical conditions or legal prohibitions. Tramps are inde-

pendent or individual vessels built for hire and chartered by their owners to whoever agrees to pay the most profitable charter rates.

Typical modern tramp vessels seldom exceed 375 feet in length, have a gross tonnage not much in excess of 4,000 or 5,000 tons, a speed of from 8 to 10 knots per hour and are equipped to transport many varieties of cargo.

They are engaged primarily in the transportation of full vessel loads of bulky commodities, such as coal, ore, grain, nitrates and phosphates, sugar, crude building materials, chalk, lumber and lumber products. Tramps are, however, used at times for the carriage of full vessel loads of iron and steel products, machinery or other commodities moving in large units; they are sometimes placed "on the berth" for general cargo in smaller lots, particularly if line freight rates are high or line tonnage scarce; and they are sometimes chartered by regular lines to operate in their regular service either for single voyages or for an agreed period of time.

*The Tramp
Steamer*

The owners of tramps do not need to provide themselves with established warehouses, wharves or docking facilities, and do not need to establish fixed agencies throughout the world; nor is it necessary for them to conduct advertising campaigns. They obtain

as many cargoes for their vessels as possible through their own organizations, but are mainly dependent upon ship-brokers located at the larger ports throughout the world. Many ship-brokers have extensive telegraphic connections, and are constantly informed as to the supply and demand for ocean vessels and cargoes; for a commission or brokerage charge they provide tramp vessels with cargoes and shippers with tramp vessels. They attend to the executing of the charter or contracts which underlie the tramp service. At times they make temporary financial advances to the masters of tramp vessels for current expenses, and at times they act as permanent agents or managing owners of vessels.

Charters or charter parties are of two kinds: the trip charter and the time charter. In the former case, the vessel is chartered for a single trip or voyage, the owner retain-

Trip and

Time Charters

ing possession of the vessel and operating it but agreeing to transport a specified cargo. The payment is based upon the quantity of freight carried—that is, an agreed sum per ton, or per 100 pounds, bushel, quarter, or other unit of cargo. The time charter provides for the lease of the vessel for an agreed period of time. It may place the vessel entirely in the possession of the charterer, or it may provide

that the vessel shall be manned and provisioned by the owner.

The common practise in the overseas trade is for the owner to man and provision the vessel, while the charterer provides the fuel, pays all expenses incurred at the ports and pays to the owner an agreed amount per deadweight ton. The payment may, however, be based on the vessel's net register tonnage, and it may be either a fixed periodical payment or a lump sum. Tramp vessels are sometimes chartered by the owners of regular lines either on trip or time charters, and when so operated they are engaged in line rather than in tramp service.

Vessels engaged in the regular line service operate over definite routes on an announced schedule. They carry general cargo as well as bulky freight in large and *Regular Line Service* in small lots; and in addition many such vessels carry express goods, international mail matter and passengers. Regular lines may be divided into three groups:

1. Express liners carrying mainly passengers, express and mail. These vessels have but small cargo space, and are operated at high rates of speed.
2. Combination liners which carry passengers, express, mail and freight cargoes, but have more cargo space than express liners.

Some depend mainly on their passenger traffic, others carry passengers only incidentally, and some divide their freight and passenger business about equally. Combination liners consequently include vessels of many types, sizes and rates of speed; they range from those which have but few passenger accommodations to the very largest transatlantic liners, but even the latter operate at a speed somewhat less than that of the express liners.

3. Cargo liners, which are fast cargo vessels performing line services but confining themselves to freight cargoes. They include most of the world's largest, best equipped and fastest general cargo carriers.

The distinction between privately operated or industrial carriers and tramps and liners is not always clearly marked, because the former frequently act as common carriers, accepting cargoes for others as well as for the concerns which operate them. They differ from other vessels, however, in that they are primarily engaged in the transportation of cargoes for the industrial or commercial companies which operate them. They are operated by and in close connection with some concern which uses them to transport either its raw materials or finished commodities, other freight being carried only as return cargoes

*Privately
Operated Carriers*

or to fill surplus space and to reduce operating costs. Many vessels—special types of ships constructed to transport some particular commodity—such as coal, ore, lumber, fruit, asphalt or petroleum—are engaged in this service.

The shipping or transportation documents required in the overseas export trade are of two general kinds: (1) Those which the carriers issue in their dealings with shippers, and (2) those which they are required to have in their dealings with public authorities and in the operation of vessels.

The principal transportation paper which the shipper receives from the carriers is the "bill of lading." When goods are exported from the interior or outlying points they may be shipped to the port of export either on a local or a *Local Railway Bills of Lading* through bill of lading. In the former case the shipment is billed to the port and the shipper needs to make arrangements for its transfer to the ocean carrier and to obtain a separate ocean bill of lading. The local "railway bills of lading," obtained from the railroads, are the same as those used in the domestic trade and consequently do not require detailed description. They should, however, be marked "for export," as has been mentioned in Unit IV.

The railway bill of lading may be either a "straight" bill or an "order" bill. The former is made out in the name of some one at the port who is to act as the port consignee or representative of the shipper. The latter is made out to the order of the shipper himself and requires the indorsement of the shipper before the railway will deliver the goods to the shipper's port representative.

Both forms of railway bills of lading perform two functions: (1) they act as a receipt to the shipper, and (2) they constitute a shipping contract between the consignor and the railway. The contract printed on the back of these bills of lading specifies the conditions under which the railway agrees to transport the goods and the carrier's liability. (The extent to which the railway is liable is described in the section of this Unit on Marine Insurance.) The railway order bill of lading is, in addition, a negotiable document and prevents the railway from delivering the shipment without presentation of the bill properly indorsed by the shipper. At least three copies are issued for each rail-shipment—the "original" bill which, in the case of export shipments, is sent to the port consignee or exporter's representative, the "memorandum" copy, which is retained by the shipper for filing or record, and the "shipping or-

der," which is retained by the railway. Additional copies may be issued if desired.

Export shipments may be shipped from interior or outlying points on "through" or "export" bills of lading which carry the goods through the port of export to the foreign port of entry or even to the foreign inland destination. Such a bill contains a threefold contract covering

*Through Bills
of Lading*

separately the inland shipment to the port, the ocean voyage to the foreign port, and the inland shipment from the foreign port to the inland destination. The first two sections are similar to the usual railway and ocean bill of lading contracts, and the last section provides that "the property shall be subject exclusively to all the conditions of the carrier or carriers completing the transit."

The through bill relieves the exporter of the task of transferring the cargo at the port of export. Many American exporters prefer, however, to ship to the port on local railway bills of lading and then give separate attention to port and ocean charges and services, frequently in this way obtaining better terms. Large foreign importers located inland seldom desire that cargoes be shipped beyond the port of entry on through bills of lading, for they are usually in a position to make more economical arrangements for handling

the goods at the foreign ports and forwarding them inland than are provided in a through bill of lading issued in the United States.

When exporters, either directly or through their port representatives, ship via ocean carriers they obtain an "ocean bill of lading."

As in the case of railway or through export

*Ocean Bills
of Lading*

bills of lading, the bills of lading issued by ocean carriers may be drawn either directly in the name of the consignee or to the "order" of the shipper. The latter practice is usual in the foreign trade, for an order bill prevents delivery of the goods without the indorsement of the shipper and is especially adapted to settlement by international draft or bill of exchange. The indorsement may be either in blank or to a particular individual or concern. It is also permissible to insert the name of the consignee in the margin of an order bill with instructions that the steamship company notify him when the shipment arrives, but such a clause does not entitle him to possession of the goods. Relatively few ocean bills of lading are drawn directly in the name of the foreign consignee. They are so made out only in case the consignee has paid for the goods or has provided security or guarantee for payment before shipment, or in

case they are shipped on an open account arrangement.

The bills of lading issued by ocean carriers on export shipments are not absolutely uniform in form and contract, but their principal clauses are similar. They differ widely from railway bills of lading as regards their liability clauses. The extent to which ocean carriers are liable to shippers and are exempted from liability in their bills of lading contracts, and the provisions of the Harter Act of 1893, which govern them, is discussed in the section on Marine Insurance.

Ocean bills of lading are prepared by the shippers on forms provided by the ocean carriers, and it is necessary to prepare from three to eight copies. The number varies according to the requirements of the exporter, the ocean carrier and the consular authorities of foreign countries. Ordinarily two or three "negotiable" copies are made out for use by the bankers through whom the drafts with documents attached are negotiated. The bankers insist upon a so-called "full set" of bills, i.e., every negotiable copy must be delivered to them. The remaining copies are non-negotiable and are used in various ways. The shipper may desire one for his files, another

*How Ocean
Bills of Lading
Are Prepared*

may be sent to the consignee for his convenience, the ocean carrier retains at least one copy, and additional copies may be required by foreign consuls.

In making out the ocean bill of lading, care is taken to fill in exactly the same shipping marks that are used in marking the goods for shipment and are contained in the shipper's invoice. All of the negotiable copies are carefully indorsed by the individual or firm to whose order they are delivered. Every effort is made to obtain "clean" bills of lading—that is, bills containing no notations to the effect that certain packages upon delivery on board the ocean carrier were found to be in a chafed, broken, damaged, or weak condition. Bills with such notations are known as "foul" bills and are regarded unfavorably by the banks because of the likelihood that claims will be made on arrival of the shipment. The ocean carriers refuse to issue clean bills when the packages are not in proper condition, because they are liable for damage except in so far as they are exempted by the clauses of the bill of lading or by statute. Should a foul bill be issued after it is too late to put the packages in proper condition, it is sometimes possible to obtain a clean bill by indemnifying the carrier against any claims.

When issuing a clean bill of lading the ocean carrier is not expected to know the actual condition of the merchandise contained within a package. The courts have defined the clause "received in apparent good order and condition" to refer only to the external appearance of the package. Neither is the ocean carrier legally responsible for statements in the bill of lading made by the shipper. The bill usually contains an express proviso that "quality, quantity, gauge, contents, weight and value" are "unknown" to the carrier.

Ocean carriers usually refuse to issue bills of lading unless the shipper agrees to pay at least a minimum freight charge. Practice varies as to the "minimum bill of lading." The minimum clause may be a fixed amount of money, or the charge for one, one and a half, or two tons or other quantity of cargo. As has been explained in Unit IV, it is one of the functions of freight forwarders and international express companies to avoid this minimum in the case of small shipments by combining several for a number of shippers in one bill of lading.

Numerous ocean carriers have undertaken the issue of so-called "parcel receipts" to supplement their bills of lading and to facilitate the shipment of small packages of low value.

Their original purpose was to enable exporters to ship and deliver samples cheaply and quickly; but in practise parcel

Parcel Receipts receipts are sometimes used in shipping small packages of general merchandise. The carrier usually protects itself by restricting the dimensions and weights of packages within prescribed limits, by limiting their value and by preserving to itself the right to refuse acceptance of such parcels.

The other shipping documents issued to exporters by transportation concerns—such as the shipping permit, the dock receipt, etc.—have already been treated in Unit IV.

The shipping documents which the ocean carriers issue to exporters constitute a part of the papers with which they are concerned.

Ship's Papers They are also required to have so-called "ship's papers" of various kinds. Every vessel bound for a foreign port is provided with a "ship's manifest" which contains a complete list of all the separate consignments on board, the quantity of each, its value, marks and destination. A copy of the manifest is filed with the collector of the port before the vessel clears. One manifest or more is carried with the vessel and serves as a routing document and as a means of cargo identification in case of search or detention; and a copy is filed with the port authorities at the

foreign port of entry before the vessel begins discharging its cargo. A copy of the manifest is also a basis for freight accounting. The ship's manifest sometimes becomes a very large document, for vessels carrying general cargoes may have hundreds of separate items of freight on board in a single voyage.

Before clearing for a foreign port the master must also obtain a "bill of health," which is issued by the port authorities and certified by the consul of the foreign country to which the vessel is destined. It states that "no plague nor any other dangerous or contagious disease in an epidemic form at present exists" at the port of clearance, and is presented to quarantine officers at the port of destination as one of the papers incident to entry.

A vessel carrying passengers has a "passenger list" to be shown to the custom house officials at the port of destination. At the same time the master of the vessel also presents a "list of stores" which indicates the provisions and similar articles remaining on board at the end of the voyage.

Before clearing from the United States to overseas destinations the master of a vessel is required to obtain a certified copy of a document known as "shipping articles," which is

the agreement between the master and his crew for the voyage. It contains the name of each member of the crew, the position held by each, his time of service and rate of wages, the scale of provisions agreed to, and other information for the safeguarding of the crew. This document is signed by the crew and the master in the presence of a shipping commissioner or a customs official.

The master is also required to deposit with the customs collector of the port a "crew list" and obtain a certified copy of it for use on his voyage. This paper contains the name and description of each member of the crew, with a notation of his place of birth and residence. The law requires that both the articles and crew list of American vessels must be produced before any consul or other commercial agent of the United States upon request. American vessels, moreover, must carry a valid "certificate of inspection" duly signed by an inspector of the United States Steamboat Inspection Service. Each vessel engaged in the foreign trade carries an official "register" or "certificate of admeasurement" which records the vessel's official name, principal dimensions and gross and net register tonnage. The form of the register differs in the various countries. In case the vessel is to pass through the Suez

or Panama canal it must also carry measurement certificates issued under the rules and in the form required for the navigation of those canals.

After all legal requirements have been satisfied, the master of a vessel clearing for a foreign port obtains from the collector of the port an official "clearance." When at sea the master is required to keep an official record of his voyage or so-called "log book," the contents of which are outlined in detail in the navigation laws of the United States. (Revised Statutes, 4290-4292.) During times of war American vessels are, moreover, at the request of the masters, provided with "passports," "Mediterranean passports" or "sea-letters" in the form prescribed by the Secretary of State.

III

Ocean Conferences and Rates

THE services and charges of ocean carriers are, in many instances, regulated by conferences, agreements, pools or understandings to which in usual times of peace many steamship companies are parties. In 1914 the Committee on the Merchant Marine and Fisheries of the United States House of Representatives, after a detailed investigation, issued a report containing a description of 80 steamship agreements and conference arrangements. The committee stated:

As regards nearly every foreign trade route, practically all the established lines operating to and from American ports work in harmonious cooperation, either through written or oral agreements, conference arrangements, or gentlemen's understandings. The few instances where two or more lines serve the same route and have denied the existence of written or oral agreements for the regulation of the trade, are exceptional and not the rule.

The European War has for the moment disrupted some of these agreements and con-

ferences, but many doubtless are maintained even under war conditions, and there is at present no indication that the practise of co-operation among steamship lines will be discontinued in the future.

The forms or types of agreements between the regular ocean lines engaged in the foreign trade are numerous. They may be classified as (1) those which regulate competition between conference lines, and (2) those which regulate competition and relations of conference lines with lines outside the conference.

The first class of agreements includes all understandings with reference to ocean freight rates. In some cases the freight charges are definitely established on all kinds of merchandise carried by the conference lines, the stipulated rates to remain in effect until changed by mutual consent; exceptions may be made of

*Control of
Competition Among
Conference Lines*

certain agreed-upon quantities of heavy, bulky freight. In other agreements, minimum rates are fixed and no member may charge a lower rate without consulting the other members of the conference or giving notice, 30 or 60 or some other stipulated number of days, in advance of the change. Some of the conference agreements provide

for differential rates among the several lines, the companies having an indirect or slower service being permitted to charge rates lower, by agreed differentials, than the charges made by the more direct or speedier lines. There are instances in which the weaker lines, without entering into a definite agreement, regularly accept the rates established by a larger or controlling line.

The agreements regulating the competition of conference lines with one another also include those arrangements in which various lines pool the freight money obtained from all or a portion of the cargoes transported, and divide the resulting earnings. Other conferences apportion the traffic among their members by allotting certain ports of sailing to each, while some conferences divide up the traffic by fixing the number of sailings of each conference line. There are a few instances in which the volume of freight which each line may accept is established by agreement. Some conferences have required each member to deposit a guarantee which is forfeited in case the line renders assistance of any kind to a non-conference line or itself establishes a competitive service. There are some cases in which several distinct ocean conferences have entered into an agreement with one other, and others in which a group

of conference lines has made an agreement with a non-conference line.

Conference lines have pursued various methods of restricting outside competition. Deferred rebate plans are employed by some lines, shippers being allowed a rebate of 5 or 10 per cent. of their freight payments at the end of each six months or other specified period, provided they agree to patronize the conference lines exclusively.

Simple rebates dependent upon the size of a shipper's aggregate shipments are sometimes paid, but deferred rebates have the special advantage to the steamship lines of making it difficult for competitors to obtain any cargoes from those concerns that are unwilling to forfeit the sums which stand to their credit but are contingent as to payment upon their exclusive use of certain lines.

*Control of
Competition With
Outside Lines*

Conference lines, either as a group or as individual lines, sometimes enter into special contracts with shippers, the steamship lines agreeing to furnish vessels at regular intervals and to carry the contracting shippers' freight at reduced rates. The shippers agree to employ the conference lines exclusively and to announce the quantity of their shipments in advance so as to enable the steamship companies more easily to provide the neces-

sary tonnage. "Fighting ships" have been employed at times, the lines of a conference selecting certain steamers to be operated so as to duplicate every sailing of the competing line. The "fighting ships" carry freight or passengers at reduced charges. The preferential contracts between conference lines and the railways, which apply at some ports of the United States, also tend to hinder the establishment or operation of competitive ocean lines.

Ocean conferences and agreements have been confined largely to the regular steamship line services. Associations of sailing vessels or tramp steamships engaged in the foreign trade have been organized at various times, but their activities have had to do mainly with the standardizing or improvement of charter parties, with demurrage rules, loading and unloading, marine insurance, labor troubles, legislation and similar matters. There have been attempts to establish minimum charter rates over certain routes, but charter rates in the foreign trade are largely competitive and fluctuate freely with changed conditions of supply and demand. The large number of ocean-going tramp vessels and vessel owners and their practise of operating in all parts of the maritime world make it difficult to instil

cooperation into the making of charter rates.

Ocean line conferences and agreements possess certain monopolistic features which, in the absence of public regulation, are liable to abuse. The conferences have at times made difficult the establishment of new lines, have advanced ocean line rates arbitrarily, discriminated between large and small shippers, and encouraged secrecy in business operations.

*Advantages and
Disadvantages of
Ocean Conferences*

However, the conferences have their advantages from the standpoint of the export shipper. The regularity of service which they make possible is of obvious advantage for it encourages prompter and more regular delivery in export markets, enables shippers to operate with smaller stocks of merchandise, reduces the necessity of engaging vessel space far in advance of shipment, facilitates the making of future contracts, reduces the difference between the relative rates of European and American steamship services to the newer markets of the world and brings about a better distribution of sailings.

The greater security to capital invested in ocean lines resulting from conferences and agreements encourages the operation of vessels of higher class and greater speed.

The greater stability of rates reduces the speculative risks of the export business and lessens the number of complaints from foreign buyers; it facilitates the calculation of net prices, encourages foreign buyers to purchase in large lots and steamship companies to enter into forward contracts when requested. Conferences and agreements also tend to maintain ocean rates from the United States to foreign markets on a parity with those from competitive foreign countries, to make the rates charged their numerous patrons more uniform, to reduce the cost of the line service and to distribute it more equally over the total traffic, to provide services to the newer markets for the purpose of building up a larger future trade, and to prevent the elimination of the weaker lines which would suffer most in a régime of free competition.

Congress should enact a law regulating the bad features of conferences and their agreements, and subjecting the conferences to public supervision. The purpose should be not to destroy the conferences, but to retain the benefits which cooperation renders carriers and shippers.

From the foregoing discussion it is evident that there is a clear relation between the charges of the regular lines and the con-

ferences or agreements to which most of the lines are parties. Such charges are obviously not the result of unrestricted competition. Yet because of a few instances in which the conference lines have advanced or maintained their rates arbitrarily, it by no means follows that they generally possess an absolute monopoly power. They endeavor to fix line rates "at what the traffic will bear," but in doing so are obliged to consider many forces which are not controlled by conferences and agreements.

*Regular Line
Freight Rates*

Line rates on exports from the United States to foreign countries are influenced in a large measure by market or commercial competition. This form of competition is particularly effective over the routes to the non-European markets in which American exporters are obliged to compete against European rivals. Competition is international in scope and forces the lines serving the United

*Rates Affected
by Commercial
Competition*

States to keep their rates on a parity with, or in close relationship to, the rates paid by European exporters on cargoes shipped to the same markets. As has been stated by Mr. William Boyd, president of Houlder, Weir and Boyd, Inc.:

Theoretically, working under an agreement in a trade where there is no outside competition, conferences can arbitrarily fix rates. They do fix them, but they cannot, because of the international character of oversea trade and the freedom of the ocean to everything that floats, maintain an unreasonable rate for any length of time. An unreasonable rate on any commodity can result only in that commodity being supplied by some other country, and the loss of its carriage to the conference lines. This would not be good business, nor would it be good policy. . . .

The whole history of the shipping business has proved the folly of conferences which tried to trade upon an apparent monopoly, and experience and self-interest have evolved the present-day conference idea, which is combination for the development of trade, and restraint only of wasteful competition While theoretically a conference enables the lines to establish rates, such rates cannot be arbitrary, but must be reasonable. Self-interest demands that they must enable the shipper or merchant to compete with the shipper or merchant of other manufacturing countries.

Market or commercial competition similarly influences the relative ocean line rates from the various ports of the United States. While an absolute parity is not maintained, the rates are made with reference to one another. The Committee on the Merchant Marine and Fisheries of the United States

House of Representatives, for example, states with reference to the Cuban trade:

It may be added that the rates from New York are about the same as those from the Gulf ports, and that in the case of most articles it would be impossible for the Gulf ports to enjoy a differential since the Atlantic lines would meet the rates The New York and Cuba Mail Line, the principal line from New York, is a member of the Gulf Foreign Freight Committee for the purpose, as stated by the management of the line, that we may obtain information as to the freight rates from the Mississippi Valley to the seaboard and from the Gulf to the Cuban ports in order to enable us to meet their competition. Only in the case of grain and packing-house products, because of the greater nearness to the territory producing the same, do the Gulf lines probably make the rates, the same being followed by the New York lines with a view to developing trade from their territory.

In fixing rates at what the traffic will bear, the lines are also influenced to some extent by tramp competition. Many lines carry bulky commodities in competition with chartered vessels. Tramp competition is a particularly important influence in the case of the line rates on so-called "berth cargoes," such as grain and case oil, which the lines carry to fill surplus

*By Tramp
Competition*

cargo spaces or even in lieu of ballast. Should the general cargo rates of the lines, moreover, become unreasonable as compared with the cost of chartering vessels, tramp competition may also affect the line rates on general cargoes. The vice-president of the International Mercantile Marine Company, Mr. P. A. S. Franklin, makes the following statement concerning the influence of tramp competition :

Neither the large nor the small shipper is ever at the mercy of the steamship lines if rates advance to a point which may be thought to be unreasonable. If the rates exceed or even approximate the rates at which tramp steamers can be chartered, large shippers of special commodities immediately protect themselves by the employment of tramps for the transportation of their shipments; and small individual shippers, who cannot accumulate merchandise in quantities sufficient to justify the chartering of tramp steamers, are at such times served by chartering brokers, who are always ready, when rates by the regular lines advance to such a point that a profit can be made by chartering, to lay chartered steamers on the berth, themselves accumulating the shipments of numbers of small merchants, who by this means can always protect themselves against oppression.

The direct rate competition between regular lines is restricted and controlled through

conferences and agreements, but is not entirely absent. The rate competition between the lines takes place in the conference committee meetings, and takes the form of argument rather than actual rate wars.

The weaker and stronger lines must compromise. If there are marked differences in the services

*By Competition
Within the
Conference*

performed, some lines are permitted to charge differential rates. In addition, the conference lines are sometimes obliged to compete against independent, non-conference lines.

The value of the commodities carried is also a factor in determining what the traffic will bear. Value is not generally considered in the making of railroad freight rates, but it accounts in part for the difference between general cargo rates as a whole and charter rates or special line rates on low-grade bulky commodities.

*By the Value of the
Goods Carried*

Many ocean lines, moreover, charge different rates on the various articles which comprise their general cargo and some of them have established classifications. Certain lines operating between New York and Central America, western South American and West India ports, for example, publish tariffs in which they group miscellaneous freight in six classes and quote rates for each

class as well as for many special commodities at stated amounts per 100 pounds, cubic foot, running foot or M feet. Various lines similarly classify freight and quote rates, in a tariff issued by the Gulf Foreign Freight Committee, on shipments from Key West, Mobile, New Orleans and Galveston to Havana and Cuban outports. Some of the lines on the north Pacific route publish tariffs quoting different rates for many commodities at stated amounts per measurement ton or weight ton, and for smaller parcels at fixed sums for specified weights.

Steamship agents at Newport News, Baltimore and New Orleans publish rate cards which specify ocean rates to Europe on different commodities at stated amounts per 100 pounds, long ton of 2,240 pounds, measurement ton of 40 cubic feet, barrel or other unit of quantity. The German lines have published tariffs and have divided freight shipped from Germany to the United States in six classes, but the lines of the north Atlantic do not regularly publish tariffs or classifications, and this is also true of the lines running from New York to South Africa, Australasia, China, Japan, Brazil or Argentina. There is a tendency in many parts of the world to modify the old practise of basing all ocean line rates on the weight or measurement ton,

and to assign separate rates to different commodities.

Differences in the value of the service rendered also influence ocean line rates. The differentials accorded to the slower or indirect lines are a reflection of the principle that rates may not be higher than the value of the service rendered. The value of the service likewise establishes the maximum above which the ocean rates on particular commodities or the level of line

rates as a whole cannot permanently remain. It is a variable

*By the Value of the
Services Rendered*

quantity measurable, in part, by the difference between the prices of commodities in the United States and abroad. Under conditions such as have prevailed since the outbreak of the European War the need for American commodities has become so acute in some countries as to permit of an unprecedented advance in ocean freight rates.

Line rates at times fluctuate with the relative supply of, and demand for, vessel tonnage and cargoes. Conferences and agreements prevent the almost ceaseless fluctuations which would occur if every change in supply and demand

*By Tonnage
Supply and Demand*

were reflected in rate changes; but they do not cause rigid stability. As has been stated, the lines on some of the principal

ocean routes do not regularly publish tariffs of their actual rates. They maintain their agreed minimum rates, but the rates actually in force may be higher and are subject to numerous changes. Even the agreed maximum rates are at times changed by the conference lines. The wide increases in ocean line rates which have occurred since the outbreak of the war are due in a large measure to shrinkage in the world's available deep-sea tonnage and to an increase in the volume of cargoes awaiting shipment.

*How Cost
of Service
Affects Rates*

While line rates are made primarily in accordance with what the traffic will bear, that is, largely with reference to the commercial and competitive considerations outlined above, they are also at times affected by the cost of the service rendered by the lines. They are not based primarily upon the costs incurred, but are sometimes influenced by costs. The lines, particularly those which are members of ocean conferences, are usually in a position to maintain the general level of their rates sufficiently high to cover the cost of the service and yield a profit on the investment. The total costs incurred include not only current costs such as crews' wages, fuel costs, marine insurance, depreciation, port and terminal charges and canal tolls, but also

capital costs, such as interest on the investment.

Should the costs of a particular line differ widely from the expenses of other lines performing the same services, that line may be totally unable to maintain its rates above the cost of its service. Similarly, since ocean rates are made primarily in accordance with commercial forces, the general level of line rates may be far above the cost of service. The present high level of line rates is partly the result of the increase in insurance costs, running expenses (wages, supplies and fuel), and terminal charges which the war has occasioned—but the rates as a whole have increased far more rapidly than the aggregate cost of the line service.

Particular ocean rates are seldom based upon the entire cost of the service incurred in connection with the individual commodities carried. However, should special costs of any kind be incurred in handling some commodities as compared with others, they may be reflected in rate differences if the commercial conditions permit. Special handling costs incurred in port or transshipment costs are frequently added to the ocean rates on a particular consignment when the freight bill is presented. "Primage" was also regarded as a special or additional cost in the past

when it was considered as extra pay to the officers and crew in reward for special care exercised by them, but shippers now consider, when primage is charged, that their regular freight rates are being increased by 10 per cent. or other known percentage. Primage has lost its original purpose, and when charged is merely a part of the total freight rates collected.

Distance or the length of an ocean voyage is a cost factor, but it affects particular ocean rates even less than railroad rates are affected by the length of the rail haul. The rates on dry-goods, hardware, canned goods and barrel oil, for example, are lower on shipments from New York to Shanghai, China—a distance of 12,500 miles—than to Buenos Aires, Argentina, a distance of but 5,800 miles. Many of the relative ocean rates from the various ports of the United States to common destinations show a similar disregard of distance.

*Distance as a
Cost Factor*

Rate differences can seldom be taken at their face value. They are sometimes due to differences in the kind or amount of service performed by the ocean lines, although they are due mainly to the practise of basing rates on what the traffic will bear rather than upon the cost of the service.

Charter rates differ from the general cargo

rates of the lines, chiefly in that they are more subject to competition and usually fluctuate to a greater degree with the myriad changes which occur in the relations between the supply of, and demand for, vessel tonnage. In the foreign trade the tramp vessels of the world compete against one another, and in addition are obliged to compete with such regular lines as seek bulky freight either as berth or general cargoes. Charter rates may move upward or downward many times in the course of a day at a single large port. The rates for tramp vessels seeking grain cargoes, for example, may fluctuate as readily as the price of grain; indeed they are regularly quoted on the floors of the great produce exchanges for the convenience alike of grain shippers and vessel operators. *Charter Rates*

The general movement of ocean rates since the beginning of the twentieth century—charter as well as line—has been fourfold. In the opening years (1900-1902) ocean rates advanced rapidly throughout the world because the British Government chartered about 2,000,000 tons of shipping for use in the conduct of the South African War. The trade depression which followed the close of that war caused a decline in ocean rates, which was not overcome even though many vessels *General Movement of Ocean Rates*

that could not be run economically discontinued operation. The situation became even more acute in 1907-1908 when international trade became disorganized. Thereafter in the course of rising business, ocean rates gradually advanced until 1912 when they exceeded the general level of the year 1900. Another reaction began in 1913 which continued until the second half of 1914. Strikes in Italy and Spain then caused a withdrawal of many of the vessels of those countries and rates began to advance; by June and July of 1914 the supply of, and demand for, vessels were largely equalized. Later, when the European War caused a withdrawal from commercial use of large numbers of European vessels and also caused marine insurance costs, running expenses and terminal charges in many countries to advance, ocean rates soared to unprecedented levels. The ocean rates on many commodities shipped from the United States to Europe were five times or more than five times the rates which had prevailed before the war began; and even rates on cargoes shipped to countries far removed from European strife advanced 300 and 400 per cent.

IV

Federal Regulation of Shipping

THE services and charges of ocean carriers engaged in the overseas trade are not regulated by the Federal Government in the same way that it regulates the services and charges of railroads. The Interstate Commerce Act of 1887, as amended to date, applies to carriers by water in so far as they handle through freight "under a common control, management or arrangement with a railroad" in interstate commerce or in the trade with adjacent foreign countries. But this law does not apply to the port-to-port business of a carrier by water even in interstate trade, and in the overseas trade it applies neither to the port-to-port business nor to such business as an ocean carrier conducts in connection with a railroad. The general rule is that the Interstate Commerce Commission, as the act now stands, may regulate the services and charges of the railroads, but not those of the vessels in the overseas trade.

How Services and Charges Are Regulated

The commission has regulated the ocean carriers engaged in the overseas trade only indirectly by exercising its authority over the

railways which connect the seaboard with the interior of the United States. It has, for example, at various times ruled, on grounds of unfair railroad discriminations, that through export bills of lading may not be issued via one port when refused to competitive ports. It is, moreover, provided in the Panama Canal Act, which amends the Interstate Commerce Act, that:

If any rail carrier subject to the Act to Regulate Commerce enters into arrangements with any water carrier operating from a port in the United States to a foreign country through the Panama Canal or otherwise for the handling of through business between interior points of the United States and such foreign countries, the Interstate Commerce Commission may require such railway to enter into similar arrangements with any or all other lines of steamships operating from said port to the same foreign country.

The commission also has jurisdiction over ferries, lighters and other terminal transportation agencies and services, regulations and charges in so far as they concern interstate traffic; and this applies whether such interstate traffic is destined to domestic or to foreign markets. The Panama Canal Act, moreover, grants to the commission the power to compel the establishment of physical connection between the railroads and the piers.

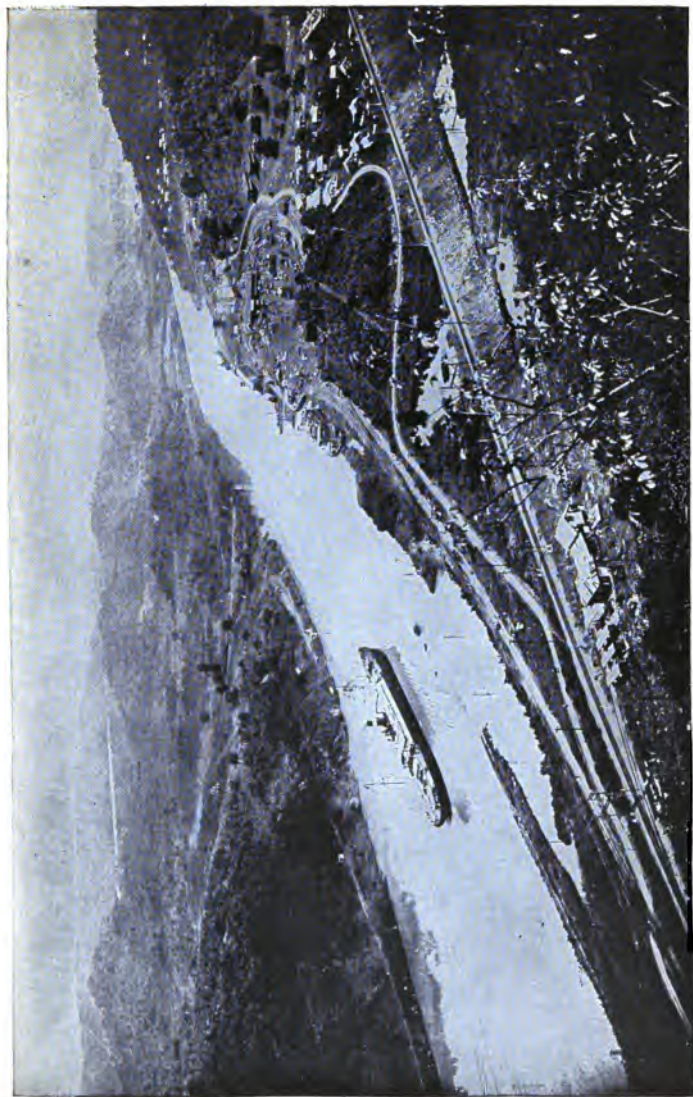


Photo by Brown Bros.

STEAMSHIP PASSING THROUGH CULEBRA CUT, PANAMA CANAL

By means of the Panama Canal Act of 1912, the Federal Government regulates, to some extent, traffic passing through the canal.



Several bills have been presented in Congress conferring power either upon the Interstate Commerce Commission or upon a separate federal shipping board to regulate the services and charges of ocean carriers engaged in the foreign trade, but at present ocean carriers are not within the scope of the Interstate Commerce Act.

Various federal laws provide for the regulation of certain special phases of the ocean passenger service and traffic. The "passenger act of 1882," as amended, and the immigration laws are of special importance in the steerage and immigrant services, but they only indirectly affect the freight services and charges of ocean carriers.

The extent to which combinations, conferences or agreements of ocean carriers are subject to existing federal statutes is at present uncertain. The anti-pooling clause of the Interstate Commerce Act applies only to such common carriers as are within the scope of the act, and the commission has decided that the act does not apply to the pooling arrangements of ocean steamship lines. Efforts have been made to enforce the Sherman Anti-trust Act of 1890 as amended. The act applies to trade with foreign countries as well as to interstate commerce,

*How Combinations
and Conferences
Are Regulated*

but the United States Supreme Court has not decided whether this act prohibits combinations, conferences, pools or agreements of the kind that prevail in the overseas trade. Nor have practical means been devised to enforce this statute against carriers in the foreign trade so as to prevent effectively a practise which has become almost universal.

The Panama Canal Act of 1912 contains several provisions which are applicable under certain conditions. (1) Section II of this act amends section 5 of the Interstate Commerce Act by prohibiting any vessel that is owned, chartered, operated or controlled by any concern which is doing business in violation of the Sherman Anti-trust law from navigating the Panama Canal. (2) The same section prohibits any railroad-owned or controlled vessel from navigating the canal, if such vessel is or might be competitive with the railroad. (3) It also prohibits any railroad from in any way owning or controlling any common carrier by water which does or may compete with the railroad unless the Interstate Commerce Commission decides that the ownership or control in no way lessens the amount of competition with the water route, and that it is "being operated in the interest of the public and is of advantage to the convenience and commerce of the people." This

provision is chiefly important in the coastwise and Great Lakes trade where many steamship and barge lines have been owned or controlled by the railways and where it has been enforced in numerous instances.

Ocean carriers engaged in the overseas trade have thus far been subjected to relatively little regulation as regards either their freight services and charges, or their conferences and agreements; but they are, in other respects, under detailed federal supervision. Many "navigation laws" have been enacted. One group of laws requires American vessels, except harbor craft and vessels not propelled by sails or internal motive power of their own, to be registered, enrolled or licensed with the United States Commissioner of Navigation. Another group of laws provides that vessels so documented shall be officially measured and shall carry a register or measurement certificate. A third group establishes the tonnage taxes which vessels entering American ports from abroad are obliged to pay. A fourth group of statutes contains many provisions, intended to safeguard the proper treatment of crews on American vessels. A fifth regulates the manning and officering of American vessels. A sixth group of laws is concerned with sea-worthi-

*General
Navigation Laws*

ness and inspection of ships; a seventh with the rules for the prevention of collisions and the application of the international rules of the road; an eighth group with the use of wireless telegraph apparatus; and a ninth with the entry and clearance of vessels. A tenth group of laws deals with the liability of owners, masters and shippers in case of loss or damage of cargoes, the duty of rendering assistance to vessels in distress, and the right to remuneration for salvage services.

Other navigation laws deal with the boarding and searching of vessels, the entry of imported cargoes at the customs house, the ship's documents or papers that must be carried and presented; quarantine regulations; the inspection, entry and deportation of immigrants; the inspection and transportation of special cargoes, such as live stock, meats and dairy products, adulterated food products and opium; the establishment of anchorage grounds; the placing of obstructions to navigation; the trial and punishment of piracy and other crimes; and violation of the country's neutrality.

The most important recently enacted navigation law is the Seamen's Act of March 4, 1915, which changes previous requirements regarding the size, equipment and care of crews' quarters, the payment of crews' wages

and punishment for desertion and other offenses. The act provides that sailors shall be divided into two watches, and firemen, oilers and water-tenders into three watches; it provides that seamen shall not be worked alternately on the deck *The Seamen's Act*

and in the fire-room except under special conditions; it defines how sailors may receive the rating of "able seamen," and provides that at least 40 per cent. and ultimately at least 65 per cent. of the deck crew shall consist of men having this rating. It further requires that at least 75 per cent. of the crew in each department shall be able to understand the orders of officers. It provides also for adequate life-boats, rafts and other life-saving equipment, and for the manning of boats.

The various federal regulations applicable to shipping are administered by numerous separate government authorities. The United States Bureau of Navigation is intrusted with the documenting of American vessels, the supervision of vessel measurement, and the general enforcement of the navigation laws; *By Whom Regulations Are Administered*
the United States Shipping Commissioners with the shipping and discharge of crews; and the Steamboat Inspection Service with the inspection of vessels.

The Customs Service has charge of the

entry and clearance of vessels and cargoes, the survey and inspection of cargoes, the collection of duties and tonnage taxes, the bonding of imported merchandise and the tonnage measurement of vessels. The Coast Guard through its revenue cutters cooperates with the customs service in the boarding of vessels, the collection of dues and the enforcement of the customs regulations. The Bureau of the Public Health Service administers the health regulations and the quarantine stations.

The State Department negotiates treaties which contain regulations applying to the foreign trade. This department also supervises the laws and rules of neutrality, and through the customs authorities concerns itself with the enforcement of the laws and rules. In this the department is assisted by the naval and military authorities. The Consular Service enforces the laws applying to American vessels and their crews in foreign ports, and, when necessary, gives assistance to the vessels and their crews.

The Department of Labor through the Bureau of Immigration administers the immigration laws. The Department of Agriculture supervises and inspects the exportation and importation of live stock, meats and dairy products, and in cooperation with the Treas-

ury Department administers the laws applicable to the exportation and importation of adulterated or misbranded foods and drugs.

The War Department establishes the official harbor lines at the various ports, and enforces the laws prohibiting the obstruction of navigation.

The Navy Department assigns officers to many ports where they cooperate with the port collectors; the commanding officers of its fleets act as American consuls on the high seas or at foreign ports where no resident consul is located; and it has charge of the inspection of the first three classes of vessels operating under the mail contract act of 1891.

The Post-office Department regulates the foreign mail service; the Interstate Commerce Commission administers the interstate commerce law in so far as it applies; and the Department of Justice concerns itself with the enforcement of all the laws applicable to export shipping. Congress ratifies commerce and navigation treaties, enacts the navigation and other statutes which underlie the regulation of shipping, and from time to time conducts shipping investigations through its established committees.

V

The Railroads and Overseas Exports

FOR export trade with the adjacent foreign markets of Canada and Mexico, the railroads provide direct overland transportation. American railroads either carry goods directly to destination over their own tracks, or transfer freight to foreign railroads. Various Canadian railways extend into the United States. Through bills of lading are issued, cars are interchanged, and freight is shipped and delivered in these neighboring countries in much the same manner as to points in the United States, excepting only that for foreign shipments government requirements as to entry, shipping papers, duties and other details must be fulfilled.

The prime function of the railroads in the overseas export trade is to enable the interior exporter readily to forward his wares to seaboard terminals for transshipment to the various types of ocean carriers discussed in the preceding pages. A discussion of the service by the railroads requires the consideration of (1) the railroads' equipment, terminals and other physical facilities; (2)



GETTING OUR EXPORTS TO SEABOARD

This train of the Pennsylvania Railroad, comprising 120 loaded coal cars, demonstrates the efficiency of our inland transportation.



railroad regulations and freight services; and (3) freight charges.

Many of the facilities of the railroads employed in the export trade are identical with those employed in the domestic trade and are consequently familiar to all prospective exporters.

*Railroad
Facilities in
Export Trade*

Rolling stock—general and specialized freight cars and locomotives—are the same; so are their inland freight forwarding stations, transfer yards, reconsignment points, warehouses, elevators, icing stations, private sidings, branch lines and feeders and other inland facilities. As in the domestic trade, these facilities are provided either by the railroads directly or by private car lines or the shippers themselves. The differences between the domestic and export trade facilities of the rail carriers are found mainly at the seaboard terminals. Even these terminals correspond in many respects to those at or through which domestic shipments are handled, because the railroads have developed their port terminals mainly with regard to their domestic traffic.

As the export trade has increased in volume, special terminal facilities have been provided. Trucks are largely employed in transferring freight from railroad stations to the waterfront; but where practicable, rail

connections have been established so as to reduce transfer expenses. The railroads own and operate car ferries and floats, freight lighters, harbor barges, floating elevators and other equipment used to transfer export freight from car to vessel. At some ocean ports railroads own extensive waterfronts upon which they have provided wharves, warehouses, car yards, coal terminals, stationary elevators and extensive facilities for loading and handling export freight.

Many of the regulations and services of railroads are the same for both export and domestic freight, much export freight being forwarded to the ports where it is taken in charge and its overseas shipment directed by some individual or concern acting as an agent of the interior shipper. However, railroads may, and in many cases do, perform special services and enforce special regulations on export shipments. Much export freight—more at some ports than at others—is shipped from the interior on through bills of lading.

*Services Rendered
to Exporters*

The railroad in such cases not only delivers the export freight at the port of exportation but sees to its transfer at the port and forwards the freight to its destination.

The various costs or charges incurred in the course of this transfer and forwarding may, however, be added to the freight charges which either the shipper or consignee is obliged to pay, so that by no means all exporters and foreign importers prefer to have their shipments consigned on through bills of lading.

The railroads may enforce special regulations in connection with their export traffic. Export freight upon arrival at a port of shipment is frequently granted a longer period of free time before demurrage begins to accrue than is granted domestic freight. When freight is shipped on through bills of lading or on export or through rail-and-ocean rates, special rules may be enforced. These relate to the billing of the freight, the prepayment of freight charges, the furnishing of evidence that shipments were actually exported, the packing or preparation of certain goods for export shipping, the issuing by the interior shipper of invoices, export declarations, manifests and other papers (most of them required by law) which the railroad may need in case it has issued a through bill of lading. These requirements differ. The special shipping rules contained in the export rate tariffs issued by some carriers are not uniform.

In discussing the relations of railroad charges to export shipping, separate mention should be made of (a) domestic freight rates, (b) port differentials, (c) special export freight rates, (d) through or combined rail-and-ocean freight rates, and (e) charges for special railroad services.

Much export traffic is forwarded from the interior to the ports at the rates which regularly apply to freight forwarded for domestic use. In order that the shipper may obtain the lowest charge, the most rapid delivery, the safest service or other advantages, it is well for him to study the services and charges via various routes.

*Domestic Freight
Rates Applying
to Exports*

Classified freight may be shipped from Chicago to New York over the standard all-rail routes at rates ranging from 78.8 cents per 100 pounds, first class, to 26.3 cents sixth class; over the standard lake-and-rail routes at class rates ranging from 63 to 21 cents; over the rail-and-ocean routes at rates ranging from 72 to 23 cents, the freight being transshipped to coastwise vessels at Norfolk, Newport News, Baltimore or Philadelphia; and via the lake-and-Erie Canal route at rates even lower than the lake-and-rail rates, although there are no through joint east-bound rates via lake and canal. Freight may

similarly be shipped to Philadelphia and Baltimore from Chicago at standard all-rail, standard lake-and-rail, and rail-and-ocean rates. The standard all-rail and lake-and-rail rates to Philadelphia and Baltimore are less by fixed differentials than the corresponding rates to New York. Freight may be shipped to Boston over all-rail and lake-and-rail and rail-and-ocean routes at fixed differentials above the New York rates.

There is an even larger number of routes with different rates on westbound shipments. Westbound freight may move via ocean-and-rail and via standard and differential all-rail and rail-and-lake routes from each of the north Atlantic ports. Through joint rates are quoted from New York via the canal-and-lake route. These are the principal westbound and eastbound routes, but additional routes will be mentioned in the section on inland waterways.

The routes on which the rates are less than on the standard all-rail routes between any two points are frequently known as "differential routes." Their rates are commonly established at certain differentials below the standard all-rail rates, so as to correspond with the differences in the kind of services which the several routes are able to perform. Any

*"Differential
Routes"*

change in the differentials affects the relative amounts of freight traffic carried over the various routes, for the freight rate is frequently the prime consideration of a shipper. The Interstate Commerce Commission recently refused to permit an increase in the lake-and-rail rates between the West and points in New England and the Middle Atlantic States, the effect of which would have been a restoration of the differentials which existed before the 5 per cent. increase in the all-rail rates occurred.

There are many different ports through which export freight may be forwarded from the interior, and the rivalry between these ports as well as between some of the railroads which serve them exerts a strong effect upon freight rates. The effect is particularly strong in the case of shipments destined for export, and opens additional routes for the exporter situated inland. While the rates on domestic shipments from Chicago to New Orleans, for example, are higher than the Chicago-New York rates, much export freight shipped via New Orleans is granted special export rates which enable the Gulf routes to compete better for the export business. Interior exporters when shipping freight to the Orient or Australasia may also consider the transcontinental routes

via Pacific ports, through which there are many special export rates on goods that may be exported via either Atlantic or Pacific ports.

This sort of port and inter-railway rivalry sometimes results in the adoption of "port differentials," which place the rival ports in definite relationship to one another as regards rates to and from the interior. The port differentials governing the rela-

*Port Differentials
the Result of
Rivalry*

tive rates from the interior to the north Atlantic seaboard, for example, have been readjusted several times; at present, taking Chicago as a representative point, they specify that the class rates to Philadelphia shall be two cents per 100 pounds less than the rates to New York via the all-rail and lake-and-rail routes; to Baltimore, three cents less than the New York rates; to Norfolk and Newport News, the same rates as to Baltimore, with certain exceptions; and to Boston from two cents (sixth class) to seven cents (first class) higher than the New York rates, in the case of domestic traffic—but they provide that in the case of export traffic Boston shall receive the domestic class rates of New York. The rail-and-ocean class rates to New York, Philadelphia and Baltimore are nearly uniform, with minor differ-

ences in the lower classes, and those to Boston are from two to four cents higher.

The eastbound commodity rate differentials provide that the rates to Philadelphia via the all-rail and lake-and-rail routes shall be two cents per 100 pounds under the New York rates; to Baltimore, three cents under the New York rates; to Norfolk and Newport News the same rates as to Baltimore, with certain special differences. The domestic commodity rates to

*General Differentials
in Force*

Boston are higher than the New York rates by fixed differentials determined as follows: When a commodity rate to New York is the same as a class rate, the commodity rate to Boston will be higher by the same differential applied in fixing the class rate to Boston; and when a commodity rate to New York differs from a class rate, the rate to Boston shall be higher by the differential that is applied in determining the next higher class rate to Boston. As in the case of class rate differentials, Boston receives the domestic commodity rates of New York on commodities destined for export.

Certain commodity rates, however, are determined in accordance with special differentials which differ from the general differentials just mentioned and are of special

importance to export shippers. The rates on export grain and flour to Philadelphia are one cent per 100 pounds, instead of two cents, below the New York rates; those on export grain to Baltimore are one and one-half cents and on export flour two cents, instead of three cents, below the New York rate; those on ex-lake grain destined for export via either Philadelphia or Baltimore are two-tenths of a cent per bushel below the New York rate in the case of barley and oats, and three-tenths of a cent per bushel on wheat, corn and rye; the rates on grain and grain products to Boston are two cents per 100 pounds above the New York rates, when shipped for domestic use, but are the same as New York rates when shipped for export. Special export differentials have also been established for the rates on iron and steel commodities.

*Special Commodity
Differentials*

In many instances export traffic forwarded from the interior is favored by special export rates which are lower than the prevailing domestic rates. The class rates to New York, Philadelphia and Baltimore from points in the central West beyond the western bounds of trunk line territory are the same for export as for domestic consignments, but

*Special
Export Rates
to Atlantic Ports*

"in the case of Boston, Portland and Montreal the class rates are lower than on domestic consignments. . . . On class traffic for export Boston has the New York rates, which are lower than the domestic rates to Boston by seven cents on first and two cents on sixth class. Portland gets the Boston export class rates on shipments via the Canadian Pacific and the Grand Trunk Railway. The export class rates to Halifax are the New York rates plus one cent per 100 pounds, while to Montreal the export class rates are two cents a hundred pounds under the domestic rates, which are the same to Montreal as to New York."

The eastern trunk lines have also granted special export rates on a number of commodities when shipped abroad via various Atlantic ports. Examples of such export commodity rates are those on manufactured iron and steel articles, pig iron, billets, agricultural implements, grain and grain products, flaxseed, corn syrup and glucose, corn sugar and grape sugar, starch, dross (lead, spelter, tin and zinc), and palm oil refuse. The New York Central provides special export rates on a long list of commodities when exported via Boston, East Boston, Providence or South Providence. The usual practise, when export rates are not prepaid,

is to charge the domestic rates to the port and to correct them to the basis of the export rates later, when evidence is furnished that the shipments were actually exported. If the charges are prepaid, the agent at the point of shipment may accept prepayment at the export rate, but is required to enter the difference between the domestic and export rate in the "to collect" column of the waybill; when evidence of actual exportation is furnished the charges so entered will be cancelled, otherwise they will be assessed against the commodities shipped.

The railroads serving the ports of the Gulf of Mexico have made a special effort to increase the volume of their export traffic, and accordingly they have granted a larger number of export rates than the railroads carrying export freight to the north Atlantic ports. The Gulf lines, through the agency of the Gulf Foreign Freight Committee, publish a tariff of export class rates applicable to freight originating at many points in the interior to shipside at New Orleans, Mobile and Port Chalmette, La., for export to countries other than Cuba, Australia, New Zealand and the Philippines. Another tariff contains export rates to shipside at various Gulf ports

*Special Rates
to Gulf Ports*

on classified freight and on numerous commodities for export to all countries, other than Europe, Asia, Africa, Australia and New Zealand, and to the Canal Zone and the insular possessions of the United States other than the Philippines. A third tariff extends export rates to classified freight and a large number of commodities destined for export to all foreign countries and also to the insular possessions and the Canal Zone. A fourth tariff contains export class rates and numerous export commodity rates to ship-side at Key West, Fla., for export to Cuba. A fifth tariff quotes many export commodity rates for shipments destined to Europe, Asia, Africa, Australia, New Zealand and the Philippines. A sixth grants export rates on lumber and articles taking lumber rates when exported to all foreign countries other than Europe, Asia and Africa and to the insular possessions and the Canal Zone. Packing-house products are also granted export rates when destined to foreign countries, the insular possessions and the Canal Zone.

All of these export tariffs make a special exception of freight destined to Mexican points taking through joint rates via the routes over which they are shipped. Such through rates have been granted on miscellaneous commodities, exported from the

South and middle West via certain steamship lines operating from Port Arthur, New Orleans and Texas City to Frontera, Tampico and Vera Cruz. These reduced through rates take the place in this traffic of export rates to shipside.

The export tariffs of the Gulf Foreign Freight Committee are comprehensive but they differ both as regards the interior points of shipment and the foreign destinations from and to which they apply. They are supplemented by additional commodity tariffs published by the individual Gulf lines. The export rates apply to shipside at numerous Gulf ports, but differ widely as regards the particular ports which they specify.

When exporting to countries which may be reached by way of the transcontinental railroads and Pacific ports, it is well to note the export rates which have been established by the several lines. The Trans-Continental Freight Bureau publishes a joint and proportional export tariff which applies on export shipments consigned through Albina, East Portland and Portland, Oregon; San Francisco, Seattle, Tacoma and Vancouver to: (a) Yokohama, Kobe, Nagasaki and Moji, Japan; to Shanghai and Hongkong; and to Manila,

*Special Rates to
Pacific Ports*

or beyond; (b) to Central American, South American and Mexican points when so specified in the individual note items of the tariff; (c) to the Hawaiian Islands when similarly specified; and (d) to Sydney (Australia), Suva (Fiji Islands), and Auckland and Wellington (New Zealand) or beyond.¹ The export rates apply from points in Alabama, Arkansas, Colorado, Illinois, Indiana, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New York, Oklahoma, Tennessee, Texas and Wisconsin.

This tariff contains three main groups of export rates to the Pacific coast ports mentioned: (a) export class rates to Oriental points; (b) export commodity rates on numerous specified commodities to Oriental points; and (c) an "all commodities" export rate of \$1 per 100 pounds, which is applicable to all except a limited number of especially excepted articles, when shipped to Oriental destinations in either straight or mixed carload lots having a minimum weight of 30,000 pounds, and another rate of

¹ The tariff is applicable in connection with the Atchison, Topeka & Santa Fe, Canadian Pacific, F. Waterhouse & Co., the Great Northern, Northern Pacific, Oregon-Washington R. R. and Nav. Co., Southern Pacific, Spokane, Portland & Seattle, and Western Pacific, and participating carriers.

\$1.35 per 100 pounds on shipments destined to Australasian points via some of the lines here mentioned.¹

The Chicago, Milwaukee & St. Paul Railway publishes similar tariffs containing export class, specified commodities and "all commodities" rates to Seattle and Tacoma on freight destined to Oriental and Australasian points from points in Alabama, Arkansas, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Oklahoma, Tennessee, Texas and Wisconsin. They differ somewhat from the tariff published by the Trans-Continental Freight Bureau.

The eastern rail lines have announced certain export rates via Pacific ports. The Pennsylvania Railroad, for example, has a tariff stating export rates on black smokeless powder for small arms or cannon in straight or mixed carload lots of 24,000 pounds shipped to Seattle, Tacoma or Vancouver for export to Japan, Manila and Vladivostok.

The export tariffs of the Trans-Continental Freight Bureau and the Chicago, Milwaukee & St. Paul, in addition to the export rates applicable to the Pacific coast ports,

¹ This is not applicable in connection with the Great Northern, Northern Pacific, Oregon-Washington R. R. and Nav. Co., and Spokane.

also contain through rail-and-ocean rates. The Trans-Continental Freight Bureau tariff contains through class rates, specified commodities and "all commodities" rates on export shipments to Oriental points; and the Chicago, Milwaukee & St. Paul tariffs contain such through rates to Australian and New Zealand, as well as to Oriental, points. The through rates contained in the first-named tariff are quoted "for information only," "the ocean proportions are not guaranteed." The other tariffs do not contain this proviso, but they as well as the first named instruct agents not to contract for through transportation until specific reservation of space has been secured.

*Through Rates
to Foreign Ports*

The "all commodities" through rate of \$1.75 per 100 pounds in carload lots to specified Oriental and Australian points (with arbitraries added for points beyond) is of special interest because it has given rise to the practise of bunching less-than-carload consignments. Brokers and forwarding agents make up carload shipments by engaging to forward the consignments of numerous concerns that desire to export smaller lots. This through rate is exceptionally low in comparison with the domestic rates to the Pacific ports of export.

There are other cases in which the railroads quote through rail-and-ocean rates to foreign destinations; for example, the rates to Mexican points via the Gulf ports already mentioned. The usual practise, however, at the Gulf and Atlantic ports, when a combined ocean-and-rail rate is desired, is to add to the prevailing ocean rate from the port to foreign destination the domestic rail or export rail rate (in case an export rate had been established) from the interior point to the port of export. If the ocean lines publish ocean tariffs the calculation is simple, as, for example, in shipments to Havana and other Cuban ports via Gulf ports where the Gulf Foreign Freight Committee issues not only an export tariff to shipside but also an ocean tariff from shipside to the ports of Cuba, stating the ocean freight rates and the amount to be prepaid for wharfage and handling or lighterage. Where the ocean carriers publish no definite tariffs but charge fluctuating rates, the calculation of combined rail-and-ocean rates is more difficult.

When shipping export freight, special railroad charges for special services rendered may be added to the railroad freight rates—as may also occur in domestic shipments. There is no uniform practise in regard to

*Incidental Charges
by Railroads*

payments for special railroad services. At some points they may be performed without extra charge; at others a special charge may be assessed, the amounts varying. Such charges may be for demurrage and storage, reconsignment, elevator service, switching and spotting cars, peddler car service, milling or fabrication in transit, loading and unloading, or lighterage and transshipment. Some charges may be prepaid and others may follow the freight to the port of export or to destination. Special costs may also be incurred either at the American port of export or the foreign port of entry after the export freight has passed out of possession of the railroads.

*How Railroads
Engage in Other
Export Activities*

Although the principal function of the railroads in the overseas export trade is to enable the shippers readily to forward their wares to the ports, the railroads are also factors in other ways: (1) There are several instances in the foreign trade in which railroads operate ocean lines. The railroad ownership and control of vessel properties is, however, confined mainly to the domestic trade and is less prevalent than formerly because of the prohibitive clause (Section 11) of the Panama Canal Act of 1912. (2) Some of the railroads centering at various ports,

other than New York, New Orleans and Galveston, have entered into preferential contracts with ocean lines, the principal clauses of which have to do with the use of marine terminal properties and the preferential exchange of traffic. (3) A beginning has been made in the establishment of railroad advisory bureaus which are designed to advise exporters regarding rates, routes, markets, shipping rules and customs, shipping papers and other details of the export trade.

VI

Waterways and the Export Trade

THOUGH the waterways of the United States play a smaller part in the export trade than do the railroads, they, too, provide routes to the ports of export and act as feeders of the ocean carriers. Some freight moves to the ports directly by water and some moves over routes consisting partly of railroads and partly of inland waterways. The waterways may be divided into three chief groups: (1) the Great Lakes, (2) the coastwise routes, (3) the navigable rivers and canals.

*Enormous Shipping
on the Great Lakes* The total shipping of the Great Lakes is enormous. In the fiscal year 1915, 3,155 vessels having a gross tonnage of 2,811,460 tons were enrolled for traffic on the lakes. In 1913, the last year for which comprehensive traffic data are available, the total traffic passing through the American and Canadian Sault Ste. Marie canals aggregated 79,718,344 tons of 2,000 pounds. The principal items were 48,109,000 tons of iron ore, 317,052,000 bushels of grain, 18,623,000 tons of coal, 599,586,000 board feet of lumber, 10,

213,000 barrels of flour, 1,771,000 tons of general merchandise and certain quantities of iron and steel manufactures and pig iron, salt, copper and building stone. In the same year it was estimated that 85,376,705 tons of freight passed through the Detroit River between Lake Erie and Lake Huron.

The greater portion of the bulky lake traffic is carried by bulk carriers which are either affiliated with large industrial concerns or operated as chartered vessels. Many of them are specialized vessels particularly adapted to the iron ore, coal, grain and lumber trades. In 1914 nearly 46 per cent. were controlled by eight steamship concerns; some of these were further affiliated with one another through charter relations, stock holdings and the personnel of their managements. Over 64 per cent. of the regular lake lines were at that time controlled by railroad companies, which have since then been ordered by the Interstate Commerce Commission to dispose of their lake lines in accordance with Section 11 of the Panama Canal Act.

The regular lines carry mainly flour and mill products, manufactures, minerals, fruits and vegetables and miscellaneous cargo. In 1914 six of the largest lines carried 3,260,701 tons of cargo, 62.51 per cent. of which consisted of farm products, 23.23 per cent. manu-

factures, 5.58 per cent. products of mines, 4.87 per cent. miscellaneous cargo and merchandise, 2.82 per cent. forest products, and .99 of 1 per cent. animal products.

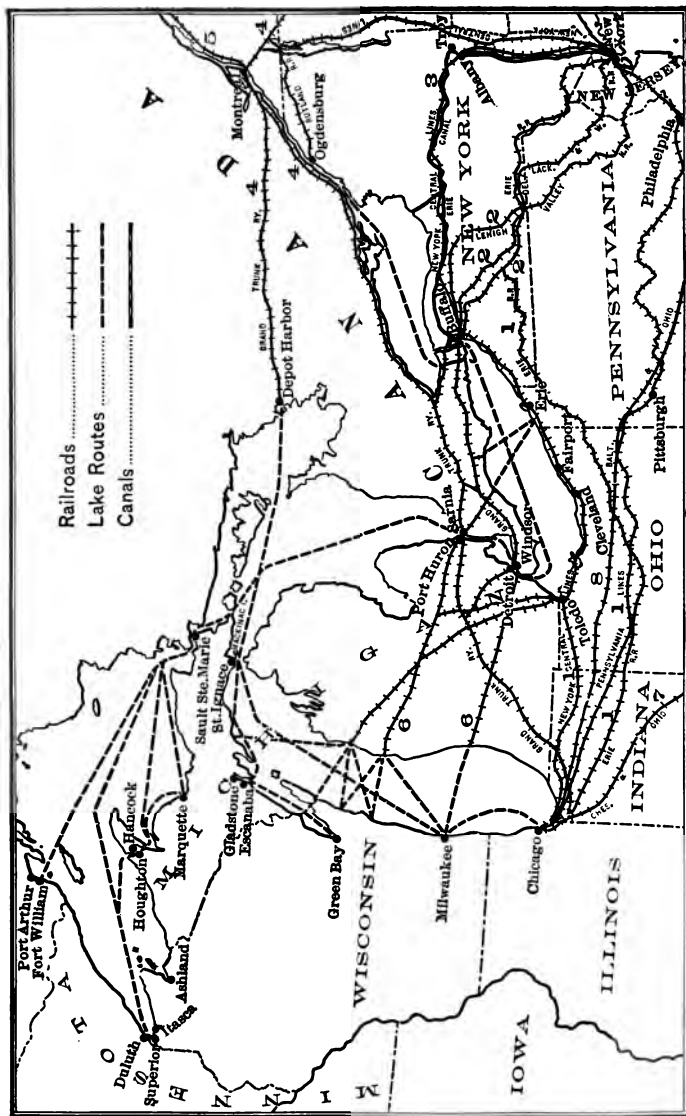
It is not known what proportion of the total lake traffic is destined for export, but a considerable part enters into the export trade in various ways:

*How Lake
Shipping Enters
Export Trade*

1. The lakes constitute one of the routes over which a direct export trade is conducted with Canada.

2. Some of the raw materials of commerce, particularly iron ore, which comprises such a large share of the total traffic of the lakes, are exported after they have been converted into manufactures. In this case the lake carriers are engaged in domestic shipping; but, by providing industrial plants with raw materials, they are also an indirect factor in the export trade.

3. The lakes are an important link in various routes between the West and the Atlantic seaports. Routes numbered (1) on the accompanying map represent the all-rail routes, the rates of which were previously discussed and compared with the rates on the rail-and-water routes. Those numbered (2) represent the lake-and-rail routes over which a large volume of traffic moves between the West and the eastern ports. Shipments may



SHIPPING ROUTES FROM THE GREAT LAKES TO ATLANTIC SEABOARD

No. 1. All rail routes. No. 2. Lake-and-rail routes. No. 3. Lake-Erie Canal-Hudson River route. No. 4. Lake-St. Lawrence-rail route. No. 5. All water route via Lakes and St. Lawrence River. No. 6. Routes across Lake Michigan and via rail.



also be made via the lake-Erie Canal-Hudson River route (indicated by the number 3), although the through traffic of this route has been small for many years. Some shipments are made via the lake-St. Lawrence-rail routes (No. 4) between the West and the north Atlantic seaboard; or via this route extended coastwise to New York through Long Island Sound, in which case it is known as the ocean-rail-and-lake route and is chiefly of importance to westbound shipments. Freight may, also, be shipped over the all-water route via the lakes and the St. Lawrence River (No. 5). Grain may, moreover, be shipped across Lake Michigan either through elevators or in railroad cars carried in large car ferries (No. 6), and then be forwarded from Michigan ports to the seaboard by rail.

A second important group of water routes is the coastwise routes of the Atlantic, Gulf and Pacific seabords. On June 30, 1915, 8,078 vessels having a gross tonnage of 2,859,773 tons were enrolled and 7,719 small vessels of 95,882 tons gross were licensed in the coastwise trade of the Atlantic and Gulf seaboard; numerous additional unrigged craft operated without being documented. In 1914 it was stated that 235

*Nearly 3,000,000
Tons of Coast-
wise Shipping*

steamships of 549,821 tons gross were operated in the regular coastwise line service, and that 61.9 per cent. of this tonnage was controlled by railroads, 32 per cent. by two large consolidations, the Atlantic, Gulf and West Indies Steamship Lines and the Eastern Steamship Corporation, and that only 6.1 per cent. was operated by independent lines. The close relationship between the railroads and regular lines has since then been changed in various instances by the application of the prohibitive clause of the Panama Canal Act and by the Sherman Anti-trust Act.

The major share of the coastwise vessels are bulk carriers operated in the tramp service or in the private service of industrial concerns, or are owned and run by some of the railroad companies in connection with their rail lines.

The total volume of freight transported on the Atlantic and Gulf routes is not known, as the vessels are not required to file manifests, but estimates show it to be large. The traffic consists mainly of bulky commodities such as coal, lumber and lumber products, petroleum, building materials, pig iron and steel rails, iron ore, pulp wood, phosphate rock and fertilizers, fruits and vegetables, ice, grain and flour, naval stores, cotton, tobacco and general merchandise and manu-

factures. The regular vessel lines carry a wide range of general cargo as well as of bulky freight.

Much the larger part of the coastwise traffic is of the domestic trade, but many coastwise carriers act as feeders to the export trade in the following ways:

1. Freight for export is carried from the small ports to the larger ones. The small ports do not always have a direct line service to foreign markets.

*How Coastwise
Boats Are Feeders
to Export Trade*

2. The coastwise carriers transport, to the ports of export, freight that has been brought to the seaboard by the railroads. The rail-and-ocean routes from the Central West to New York, Philadelphia, Providence, Fall River and Boston include a coastwise haul from Norfolk or Newport News or Baltimore or Philadelphia. (See routes Nos. 7 and 8 on preceding map). One of the ocean-rail-and-lake routes (No. 4 on the map) also includes a coastwise haul between New York and New London. There is a route between various points in Illinois, Iowa, Kentucky and Missouri and New York or Boston which includes a coastwise haul to and from Savannah; another route connecting various points in Illinois, Missouri and Kentucky with Philadelphia and Baltimore includes a

water haul between these ports and Savannah; still other routes connect New York with Missouri River territory by way of the Mallory, Morgan and Clyde coastwise lines to and from Brunswick, Galveston, New Orleans or Charleston. New York is connected with Canadian points via various ocean and rail routes.

3. Coastwise carriers—bulk as well as line—transport freight which has been brought from the interior of the Southern States either by rail or river for transshipment at southern ports.

4. The coastwise carriers, by transporting raw materials to the industries of the Atlantic and Gulf States, are also an indirect factor in the export trade which springs from the industries that the carriers make possible.

On June 30, 1915, 1,254 vessels of 570,516 tons gross were enrolled and 1,754 vessels of 24,777 tons gross were licensed in the coast-

*Two Classes of
Pacific Coastwise
Shipping*

wise trade of the Pacific seaboard. They operate on two general classes of coastwise routes: (1) "The trunk routes along the coasts of California, Oregon and Washington, and the more extended routes to Alaska, Hawaii, and ports on the eastern coast of the United States; and (2) the local routes on rivers and bays which are used not

only for the movement of local traffic, but as feeders in a measure for the trunk lines."

The regular coastwise lines on the Pacific seaboard carry considerable quantities of general merchandise of many kinds, but the largest volume of traffic, as on the Atlantic and Gulf, consists of bulk freight. The principal individual commodities are lumber and lumber products, which are being exported on an increasing scale, sand, stone and other building materials, petroleum, grain and flour, Alaska and California ores and concentrates, potatoes and other farm produce and fruits. Seattle coal is shipped in the coastwise trade to some extent, but the coal traffic is smaller than on the Atlantic and Gulf seaboard and is not carried by a regular and exclusively coal-carrying fleet. The distinguishing features of the Pacific coastwise trade are the high type of some of the combination liners which carry passengers as well as freight, and the large fleet of "steam schooners" engaged in the lumber trade.

The coastwise carriers of the Pacific seaboard are, on the whole, less closely affiliated with the foreign trade than are those of the Atlantic and Gulf, because there are fewer Pacific ports which do not have direct foreign trade connections. The larger ports of export, however, are fed by the coast carriers:

to some extent. They carry cargoes from the small or specialized ports to the larger general ports—San Francisco, Portland, Seattle, Tacoma, San Diego and the Port of Los Angeles—for transshipment to ocean carriers; they connect with the railroads at various points, and they are in turn fed by the smaller craft operating on Pacific coast bays and rivers.

Many navigable rivers traverse the eastern, southern and Mississippi Valley districts of the United States.

*Navigable Rivers
Are of Minor
Importance in
Export Trade*

They are at present of much less importance as feeders to the export trade than are either the Great Lakes or the coast-wise routes. With the exception of the Hudson River, the Mississippi river system and certain streams which are the outlets of ocean ports—such as the Delaware, the Providence, the Taunton, the short New Jersey rivers flowing into New York Bay, the Cape Fear and the St. Johns—there are none among the entire multitude of rivers flowing into the Atlantic and Gulf that have a large traffic. Some of them were more important in the past, their traffic having declined after the railways were constructed. Aside from the few rivers mentioned, no one of the Atlantic and Gulf rivers of the United States—that is,

those that may fairly be regarded as inland waterways—has in recent years carried more than 1,500,000 tons of freight annually. Of these rivers those having the most traffic are the Kennebec, Penobscot, Merrimac, Connecticut, Thames, Potomac, Rappahannock, James, Pamlico and Tar, Neuse, Trent, Maccamaw, Santee, Withlacoochee, Apalachicola, Alabama, Mobile, Tombigbee and Coosa, Pascagoula, Neches, Sabine and San Jacinto. Some of these streams are relatively important, while others are scarcely used at all.

The country's greatest inland river system is the Mississippi River and its numerous tributaries. Only the Ohio River and several of its tributaries, principally the Monongahela, now have a large traffic. Aside from special streams, such as those connecting the Great Lakes, the Ohio River now carries more traffic than any other inland waterway in the United States. The traffic of the Mississippi River proper is surprisingly small, and, with the exception of the long-distance coal traffic received from the Ohio, is local. The river has lost its early importance as an export

*The Ohio Leads
in River Traffic*

route for central western products. The export commodities carried on the Mississippi in recent years have consisted mainly of southern lumber and lumber products, cot-

ton, cotton seed and its products, other farm products, and crude petroleum, some of which is probably exported after it has been refined. The United States Bureau of the Census states in 1906 that the total shipments by the entire Mississippi River system, exclusive of rafts, amounted to 19,531,000 tons of freight, 15,227,000 of which were carried on the Ohio (mainly on the upper Ohio) and its tributaries, 1,758,000 on the upper Mississippi system, and 2,546,000 on the lower Mississippi system. Including rafts, the total movement was about 25,000,000 tons.

There being relatively few navigable rivers in the western half of the country, that section is not included in the accompanying map. The principal navigable rivers draining into the Pacific are the Columbia-Willamette-Snake system, the Sacramento and the San Joaquin, each of which has been improved by the Federal Government and has an appreciable volume of traffic.

The principal canals of the United States may be grouped into (1) the Great Lakes canals—Sault Ste. Marie, St. Mary's Falls and Welland; (2) the New York State or Erie Canal system; (3) the Cape Cod Canal and other Atlantic coast canals, which are links in the proposed inland coastwise route; (4) the

*Six Groups of
Canal Systems*

anthracite-tidewater canals of Pennsylvania and New Jersey; (5) the widely scattered river canals which have been constructed to obviate or eliminate river obstructions; and (6) miscellaneous canals, such as the Hennepin, the Illinois and Michigan, Miami and Erie, Ohio and Erie, Chesapeake and Ohio, and the short, local canals in Louisiana and Texas. The traffic of all these canals, except the Great Lakes canals, is small. Some of the canals in the two best known inland canal systems—the New York state and the tide-water coal canal groups—have greatly declined in tonnage and traffic. In 1914 the Erie canal carried only 1,361,764 tons of freight, a large part of which was local traffic, and the traffic of the entire New York state system amounted to only 2,000,000 tons.

The present traffic importance of the rivers and inland canals of the United States is in marked contrast with that of the inland waterways of Europe. "The ratio of the ton-mileage of waterways and railways both in Germany and in France in 1895 was 1 to 3.5; in 1905, 1 to 3—a fact that shows clearly that the waterways are more than holding their own with the railways. The tonnage of the traffic on waterways in Belgium in 1895 was about two-thirds (64.8 per cent.) of the total tonnage of rail traffic, and in 1905 the

tonnage of the waterways was four-fifths (81.6 per cent.) that of the railways, the ratio of water to rail traffic being exceptionally high in Belgium."

Inland waterways are especially adapted to the transportation of bulky, low-grade commodities, although they are also used to some extent for general cargoes. Given adequate depth and size of channel, and given terminals and direct railroad connections, they provide an economical form of transportation.

Many inland waterway projects have been proposed during the past decade. The Erie Canal is being enlarged at an expense exceeding \$100,000,000; the Cape Cod Canal has been completed and is an important link in the proposed chain of enlarged coastwise canals; an improved route from Chicago to the Gulf has been seriously considered; numerous river improvements have been completed; while others are at present under way.

VII

Ocean Terminals, Ports and Port Facilities

THE ocean carriers connect with the railroads, inland waterways and coast-wise carriers at the ports of exportation, of which there are four main types:

1. The roadstead ports, such as Dover, Boulogne and the Port of Los Angeles, which are located on the ocean shore and have no natural embayment.
2. The natural bay ports, such as San Francisco, Seattle and Tacoma, Boston, Pensacola, Mobile and Southampton.
3. The river ports, such as New Orleans, Philadelphia, Portland, Ore., London, Hamburg, Bremen, Rotterdam and Antwerp.
4. The combination river and bay ports, good examples of which are the ports of New York and Norfolk.

All of these ports act as gateways of the various classes of carriers that have been discussed, excepting only that some ocean ports are not reached by inland waterways. All classes of ocean ports, moreover—although this is true to a greater extent at some than at others—serve as gateways for such export

FOREIGN TRADE OF PRINCIPAL OCEAN PORTS OF THE WORLD

<i>Ports</i>	<i>Year</i>	<i>Imports (dollars)</i>	<i>Exports (dollars)</i>	<i>Total (dollars)</i>
London	1913	1,235,503,000	768,483,000	2,003,986,000
Liverpool	1913	854,030,000	950,368,000	1,804,398,000
Hull	1913	242,548,000	169,180,000	411,728,000
Manchester	1913	171,742,000	102,237,000	273,979,000
Southampton	1913	124,061,000	136,633,000	260,694,000
Hamburg	1913	1,084,324,000	817,275,000	1,901,599,000
Bremen	1913	408,688,000	268,159,000	674,847,000
Antwerp	1912	625,991,000	588,734,000	1,214,725,000
Marseilles	1912	381,915,000	349,516,000	731,431,000
Havre	1912	363,669,000	255,576,000	619,245,000
Genoa	1912	200,417,000	94,917,000	295,334,000
Trieste	1913	175,997,000	161,430,000	337,427,000
New York	1913	1,048,321,000	917,936,000	1,966,257,000
Galveston ¹	1913	7,821,000	281,457,000	289,278,000
Buenos Aires	1913	325,826,000	164,479,000	490,305,000
Calcutta	1912	168,633,000	278,596,000	447,229,000
Bombay	1912	160,074,000	204,671,000	364,745,000
Alexandria	1913	117,442,000	152,713,000	270,155,000
Sydney	1913	151,897,000	151,376,000	303,273,000
Singapore	1913	181,494,000	136,077,000	317,571,000

¹New Orleans: total foreign trade in 1913, \$252,379,000; in 1914, \$283,222,000.

cargoes as originate directly within or immediately adjacent to their own limits.

Of the twenty ocean ports listed in the table on page 106, New York, London, Hamburg, Liverpool and Antwerp are close rivals as regards the total value of their exports and imports, but other ports handling a surprising volume of foreign trade are located in widely scattered parts of the commercial world. Rotterdam, Amsterdam and Hongkong conduct a very large foreign trade, but are not included in the table because statistics of the value of their commerce are not available. Many other ports are also of great importance in the export trade of the United States, though their total foreign trade is smaller than that of the ports listed. Such, for example, are the American ports included in the second table, and foreign ports such as Shanghai, Yokohama, Rio de Janeiro and Santos, Valparaiso, Havana and Melbourne.

*The World's
Principal Ports*

The United States has a large number of ocean ports, and many of them have a considerable export trade. The foreign trade of the nineteen principal ocean ports is shown in the table on page 108.

*America's Nineteen
Principal Ports*

Of the country's entire export trade, which aggregated \$2,768,589,000 in the fiscal year

FOREIGN TRADE OF PRINCIPAL AMERICAN OCEAN PORTS

<i>Ports</i>	<i>Year</i>	<i>Imports (dollars)</i>	<i>Exports (dollars)</i>	<i>Total (dollars)</i>
Portland and Falmouth, Maine.....	1913	1,815,000	6,932,000	8,747,000
Boston and Charlestown	1913	146,599,000	69,553,000	216,152,000
New York	1914	1,040,380,000	864,546,000	1,904,926,000
Philadelphia	1914	96,483,000	65,182,000	161,665,000
Baltimore	1913	32,895,000	116,474,000	149,369,000
Newport News	1913	2,261,000	13,596,000	15,857,000
Norfolk and Portsmouth.....	1913	2,112,000	15,611,000	17,723,000
Wilmington, N. C.....	1913	3,571,000	19,911,000	23,482,000
Charleston	1913	4,774,000	13,512,000	18,286,000
Brunswick	1913	119,000	14,668,000	14,787,000
Savannah	1913	4,462,000	58,235,000	62,697,000
Mobile	1914	6,915,000	50,806,000	57,721,000
Pensacola	1913	1,698,000	19,643,000	21,341,000
New Orleans	1914	89,382,000	193,840,000	283,222,000
Sabine	1914	1,922,000	24,135,000	26,057,000
Galveston	1914	12,245,000	255,767,000	268,012,000
San Francisco	1914	67,111,000	63,375,000	130,486,000
Puget Sound	1913	51,474,000	62,548,000	114,022,000
Portland, Ore.	1913	3,204,000	12,577,000	15,781,000

1915, the exports shipped from the ports of the Atlantic coast were valued at \$1,739,159,000; those from the Gulf coast at \$508,435,000; and those from the Pacific coast at \$173,686,000. The remainder of the exports were shipped from the customs districts of the northern border, the Mexican border and the interior. The exports via northern border points amounted to \$332,020,000 and have made rapid advances during the past decade.

During the decade 1905 to 1915 the exports clearing from the Atlantic ports advanced 89.6 per cent. in value, those from the Gulf ports 59.1 per cent. and those from the ports of the Pacific coast 68.4 per cent. The cotton trade of the Gulf ports was abnormally depressed by war conditions in 1915, and this is reflected in the smaller increase for the Gulf ports; the value of the exports clearing from these ports during the ten years ending June 30, 1914, advanced 69.1 per cent.

An ocean terminal usually performs two distinct functions, one commercial and one industrial. As a commercial facility, a port has to do mainly with the handling and shipment of the through freight that is brought from many regions either by rail or by inland and coastwise water car-

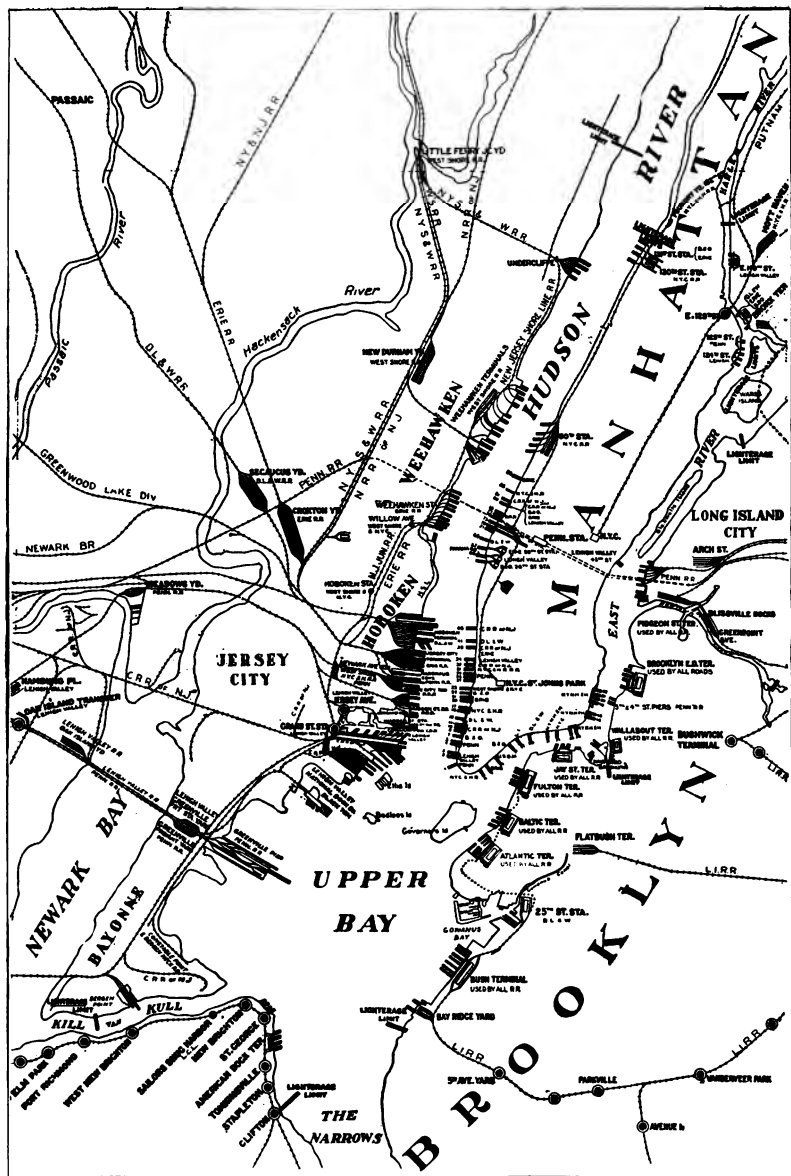
*The Two Functions
of an Ocean Terminal*

riers. This through freight requires adequate facilities for its transshipment to the sea-going vessels which transport it to foreign ports. The port must also serve the local industries that create export freight at the port or in the territory adjacent to the harbor. Ocean terminals perform corresponding services for the import trade. To enable the port to serve local industries, there must be close connection between the waterfront and the local industries or mercantile establishments; and there must be storage and warehouse facilities for the assembling of exports. Adequate docks, wharves and freight handling appliances are needed for both local and through freight.

The facilities of the many ocean terminals differ in several respects, but may be conveniently grouped as follows: (1) docks and wharves, (2) freight handling facilities, and (3) arrangements for the coordination of the various parts of an export terminal.

The docks and wharves at which vessels are placed for the receipt or discharge of cargoes, and the piers or bulkheads over which the cargoes pass to and from vessels, are the first essentials of an ocean terminal. At many ports of the United States these facilities cover large areas. The

*Docks and Wharves
Cover Large Areas*



Courtesy of Merchants' Association of New York

TERMINAL FACILITIES IN NEW YORK HARBOR

Showing how docks and wharves line all waterfronts and connect with railroads.

area of a harbor shows something as to the magnitude of its docks and wharves, although portions of the waterfront may be utilized for other purposes or may be unimproved. New York harbor, for example, has a total waterfront of about 921 miles, 125 of which are available for ocean carriers. Philadelphia has a waterfront of about 37 miles on the Delaware and Schuylkill Rivers, although the main commercial activities have thus far been carried on at docks and wharves within a frontage of about 6 miles on the Delaware River. Baltimore has a used waterfrontage of 18 miles; Boston, 12 miles; New Orleans, 15 miles; San Francisco, 8 miles, and Seattle, 6 miles, although the total available frontage at some of these ports is much longer.

American ocean ports differ widely as to the ownership of their docks and wharves. The facilities at some ports are owned by the state; at others by the municipality; at others by the railroads; and at others by the ocean, coastwise, and local navigation companies, by special wharf and dock or terminal companies, or by industrial concerns whose plants are located near the waterfront. At some ports one form of ownership predominates, while at others each of the various

*Who Owns Docks
and Wharves*

types of owners are of importance. Vessel owners may own docks and wharves, they may lease them for short or long periods from private or public owners, or they may use such as may be assigned to them when in port, paying for their use at current rates.

Some docks and wharves are used for general cargoes; others are used exclusively for special cargoes, such as coal, oil or lumber. Many wharves, particularly the large piers at which ocean liners dock, are covered with "sheds" or warehouses in which freight is assembled and through which much freight is loaded and discharged. Some of these structures are very large and their floor space is so subdivided as to facilitate the receipt and delivery of freight and the handling of special commodities or of cargoes held for or received from particular vessels.

On or near the waterfront of ocean ports there may be bonded warehouses for the storage of imported cargoes to be held until the goods are reexported or the import duties on them are paid. There is much agitation at present in favor of establishing so-called "free ports" at various American ocean ports. As is the practise at Hamburg, foreign products could be freely imported into the limits of such free ports to be manufactured into finished wares or otherwise pre-

pared, and then be reexported to foreign markets, without the payment of import duties.

The freight handling appliances at the waterfront are of two types: (1) general appliances for handling miscellaneous cargoes, and (2) special appliances for handling certain kinds of bulk cargo. The former are of two general kinds, the machinery on the ship which “commonly consists of a number of small independent donkey engines operating a windlass and hoisting gear,” and the land or harbor machinery and appliances. Ports differ as to the latter kind of machinery. Much of the freight is handled over the wharves by means of hand trucks, but there may also be large movable cranes, small movable steam derricks, traveling platform conveyors, automatic lifts, locomotive wharf derricks, wire cables and chutes and endless chain arrangements.

*Two Types of Freight
Handling Appliances*

Other freight is not loaded directly from wharf to ocean carrier, because the vessel does not anchor alongside a pier or bulkhead. Even when the vessel is so placed as to receive a portion of its cargo directly it may be necessary to move freight to it from other wharves, from railroad cars, or from ocean, coastwise or inland vessels which

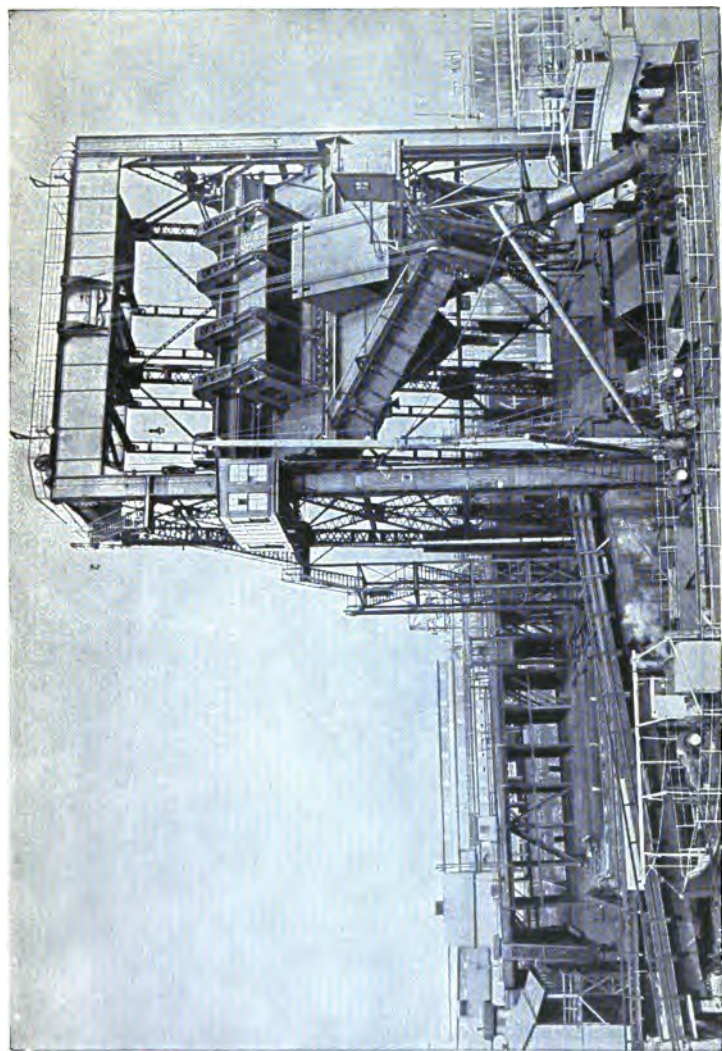
are stationed in other parts of the harbor. Such movement of cargoes may be made by wagons or trucks, by a belt line railroad, or by lighters of various kinds. A vast amount of lighterage is done in the port of New York, 10,500 or more harbor craft being employed in the service. These craft include "lighters" of 300 to 800 tons capacity, covered barges of 300 to 500 tons capacity, car ferries, car floats, scows and tugs. At New Orleans a belt line railroad is used, and such lines have also been constructed elsewhere.

The special appliances for the handling of particular commodities in bulk also vary greatly. On the whole they are much more modern at American ports than the machinery

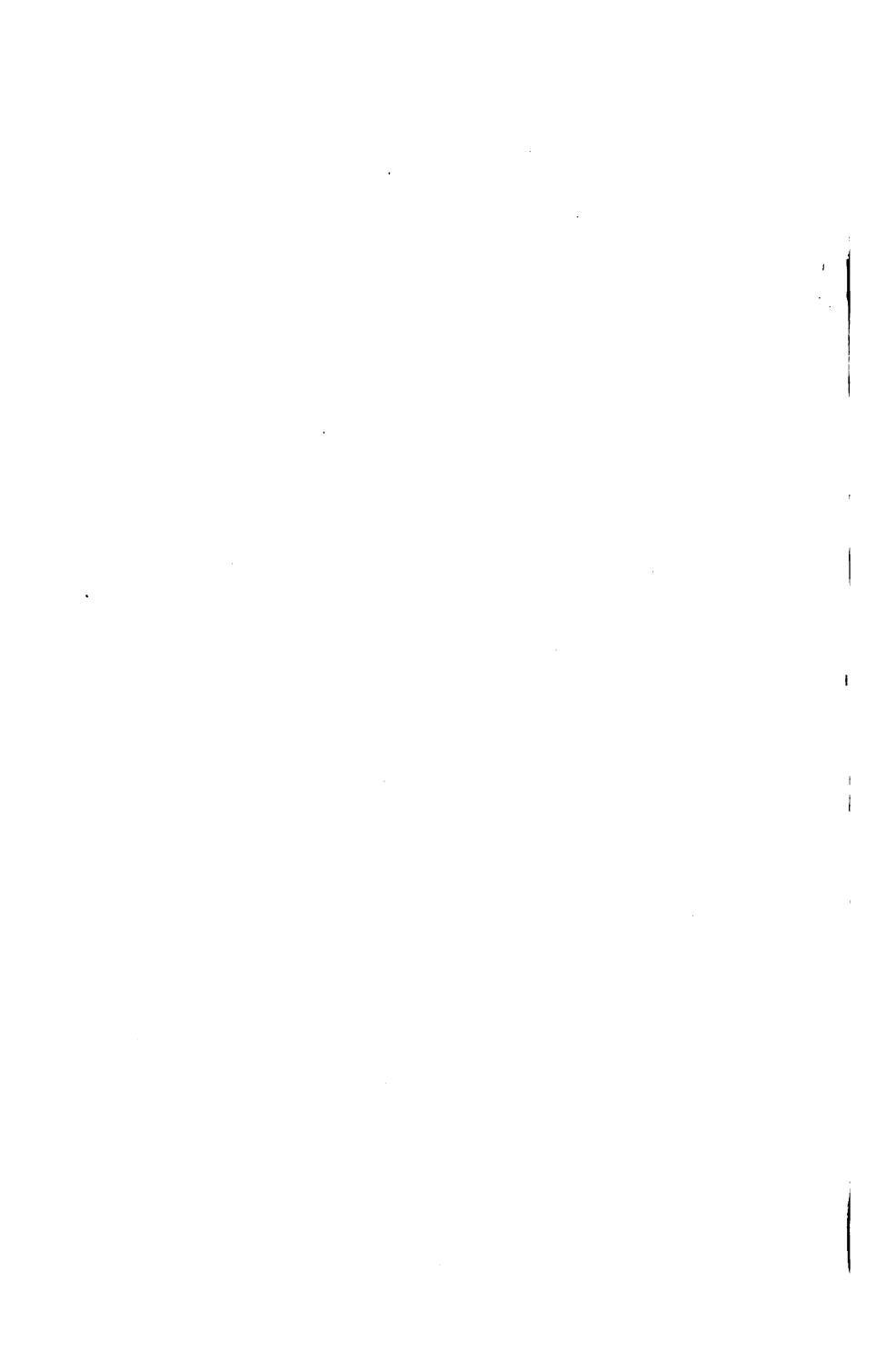
*An Example of
Efficient Loading
Machinery*

used for handling general cargoes. No better illustration of rapid and economical loading facilities can be found

anywhere in the world than at the ore shipping ports of the Great Lakes, where entire ore trains run out upon high piers or trestles and discharge their ore into movable chutes which lead to the ore-carrying vessels below or into storage pockets from which the ore is later loaded into the vessels through chutes. Over 10,000 tons are frequently loaded into a vessel in one and a half hours.



COAL HANDLING MACHINERY AT GREENWICH POINT, PHILADELPHIA
Showing how a coal car is hoisted, tipped and emptied through chutes into the hold of an ocean-going vessel.



Coal may also be loaded through chutes into vessels directly from cars or pockets by means of car-dumping machines, movable loading buckets, electric conveyors, or "fast plants" of various kinds. At many points grain is handled in bulk through stationary or floating elevators. Petroleum wharves with special appliances have been erected at various Atlantic, Gulf and Pacific ports; and at some ports special machinery is used for handling fruit, phosphate and fertilizer materials, sand, gravel and other building materials.

One of the most difficult port problems is the coordination of the different parts of an export terminal. Unless there is coordination a large amount of expensive trucking or drayage and lighterage is necessary.

The various export wharves need to be connected with one another, and with the industrial or mercantile plants located either on

*Coordination—
the Problem of
the Terminal*

or near the waterfront. The export wharves must also be connected with the wharves used by coastwise and inland vessels, and with the tracks of the railroads. Freight handling can be further expedited if the docks or harbor facilities are arranged so that a vessel can transship directly to another vessel without discharging upon the wharves the freight to be transshipped. Belt line rail-

roads are an effective means of coordinating the wharves and connecting them with the premises of shippers. Railroad sidings may also be built between industrial and commercial plants and the wharves.

The most serious need is for the coordination of the waterfront and the railroads. At New York the railroads have direct connection with the waterfront at many points, and yet because there is no "scheme of general coordination that serves shippers and receivers in the systematic manner required by the most economical handling of traffic," great quantities of railroad freight are moved about the harbor on lighters, barges, car ferries and car floats. Railroads usually have direct connection with the rail-controlled water terminals which they use for through traffic, but their coordination with other parts of the waterfront is defective at many ports.

Port and terminal charges fall into two general groups: (a) charges on vessels, and (b) charges on freight. Each class of charges contains rates for services of private or commercial agencies and also rates imposed by public authority.

Among the heaviest port charges on vessels is that for towage into or out of the harbor, or from one point to another in the

port, or into and out of docks. Towage charges vary according to the class, tonnage, or draft of the vessel, the distance towed, weather conditions and other considerations that may affect the towage costs. *Towage, Dockage and Wharfage Charges*

Dockage charges or combined dockage and wharfage charges paid by vessels for the use of docks and wharves are also a large expense, the charges being based upon the tonnage of the vessel, the length of time the ship is in the dock, the frequency of its visits to the dock, the amount of freight handled, and upon other conditions. Some navigation companies rent wharves on time leases and other companies own the wharves used by their fleet.

The tonnage taxes collected by the United States Government constitute a third charge on vessels. They are based on the vessel's net register tonnage and are two cents per ton at each entry, not exceeding 10 cents per ton annually, in the case of vessels entering from foreign ports in North and Central America, the north coast of South America, the West Indies, the Bahamas, the Bermuda Islands or Newfoundland; and six cents per ton at each entry, not exceeding 30 cents per ton annually, in the case of vessels entering from *Tonnage Taxes*

the ports of other foreign countries. The states are not permitted to levy tonnage taxes and some states exempt vessels engaged in the foreign trade from the payment of all taxes. Other states tax owners on their vessel and port properties or impose taxes in other ways not contrary to the general principle that states may not tax interstate or foreign commerce.

Pilotage fees are important charges on vessels. Pilotage is compulsory at many ports. The fees are usually based on the vessel's draft, but may vary with the seasons of the year, and may depend upon the particular points in the harbor between which the vessel is piloted. The fees for outward pilotage may differ from those for inward. Harbor dues or harbor master's fees are sometimes imposed to meet the expenses of administering the port regulations and to insure the safety and accommodation of the vessels in the harbor or at the docks.

Pilotage Fees

Port warden's fees may be charged for the survey of damaged vessels and cargoes. Health or quarantine fees may be charged for fumigating a vessel and its cargo, or for sanitary inspection.

Other Vessel Charges

Consular fees may be incurred; and in particular instances vessel charges may include

items for cooperage, for advertising for crew, for trimming cargo, for carpenter's services and for the use of a dry dock. A vessel engaged in the chartered freight service will also incur ship brokerage charges. Vessels may pay out large sums for fuel and supplies at the ports, but such charges are more commonly regarded as general operating costs.

The terminal charges on freight also vary widely. They may be paid either by the shippers or consignees as items distinct from the freight rate, or the charges may be absorbed by the ocean carrier or by the connecting rail and water carriers that delivered the freight at the port of export.

There may be separate wharfage charges on the freight distinct from vessel dockage charges. Stevedore charges for loading or transshipping export freight usually constitute a heavy cost. Loading or transshipping costs may also include special charges for the use of the cranes or derricks, elevator charges or allowances and cargo trimming charges. Export freight may incur vessel demurrage in case it is not loaded into the vessel within a prescribed time; railroad demurrage in case it is not unloaded from freight cars within a given number of days; drayage or cartage charges

*Charges on
Freight*

for hauling the freight from one wharf to another or from a railroad to the waterfront; storage or warehouse charges; railroad switching charges; freight forwarder's charges, in case a forwarder was engaged; and miscellaneous charges in connection with the preparation of shipping papers.

The administration of American ports is divided among the federal, state and municipal governments. Federal regulation at the ports is exercised chiefly through the Customs Service, the United States Corps of Engineers, the Bureau of Immigration, Bureau of the Public Health Service, and the Interstate Commerce Commission, although, as has been stated, shipping is in various respects regulated by other executive bureaus and departments.

*How American Ports
Are Administered*

The states have charge of the licensing of pilots and the establishing of pilotage rules and fees, although the manner in which they regulate pilotage is subject to supervision by Congress. The states also participate, with the federal government, in the enforcement of health and quarantine regulations; they have the power to police the ports, although they usually leave the actual police supervision to the cities. The states also have

control over the wharves, docks, and other port facilities and services of the ports, except in so far as the federal government exercises control within its jurisdiction. The states, however, may turn over to the cities the control of port facilities.

The administration of American ports varies greatly among the several states and municipalities. At many ports it is vested in municipal port authorities variously known as harbor commissioners, as departments of docks, wharves and ferries, as boards of port wardens, as departments of docks and ferries, or by other titles. These authorities construct and lease or operate municipal port properties, and regulate such port properties as are privately owned.

Some ports are administered directly by the states, and at other ports the administration is divided between state and municipal authorities. There may be, as at Philadelphia, a municipal department of wharves, docks and ferries which is given jurisdiction over the public and private docks and wharves at the port, and a State Board of Commissioners of Navigation with jurisdiction over the licensing and control of pilots, the rules for the anchorage of vessels, and the general supervision of the waterfront. Other ports have been created by railroad

and industrial companies and are largely administered by them.

In foreign countries there are numerous ports administered by so-called "public trusts" or semi-public corporations which act under charters and authority granted by the government. Examples of such ports are Liverpool, London and Glasgow. There are, also, many public ports in foreign countries, some of which are administered by specially created port authorities and others by officials of the municipalities or states.

Foreign Practises

Ports differ as regards the form of administration and the ownership of port properties. They may, however, be grouped in four classes:

1. Public ports, such as New Orleans, San Francisco and numerous continental European ports.

2. Semi-public ports, in which there is both public and private ownership of port properties and a varying degree of public control, most of the large ocean ports of the United States being of this kind.

3. Public-trust ports, which are common in Great Britain. Public trusts have recently been established at a few American ports, such as Tampa, Seattle and Grey's Harbor.

4. Private ports, such as Southampton

and Cardiff in Great Britain, and some of the smaller ocean ports of the United States. The port properties in private ports are privately owned and are administered by their owners.

While the wharves, warehouses, rail connections and other terminal facilities at American ports may be provided by private concerns, by the municipalities or by the states, the improvement of the harbors has been carried out largely, although

*Harbor
Improvement by
Federal Government*

not entirely, by the federal government. Congress has for many years made large appropriations for "rivers and harbors," the harbor portions of which are expended in dredging harbors and approach channels and in building breakwaters and other harbor improvements. These improvements are administered by the United States Corps of Engineers, which makes surveys, offers recommendations, has charge of construction work, and reports to Congress on projects for which appropriations have been made.

VIII

Marine Insurance

WHEN traffic is forwarded to the domestic ports of export via ocean routes or is exported to overseas markets, marine insurance becomes an essential part of the export shipping transaction. The wide difference between rail and water transportation in this regard is due to the dissimilarity of the carriers and to the difference in the liability which they assume for the loss or damage of goods.

Railroads frequently insure their rolling stock and freight against loss or damage, but most of the railroad companies are so large that they can consider such loss or damage as part of current operating and maintenance expenses. Their aggregate losses, moreover, are usually small in comparison with their total assets and are seldom subject to wide fluctuations.

The shipper by rail has relatively small need for insurance because the liability laws oblige the rail carriers to assume all of the principal risks that ordinarily attach to railroad freight. According to the federal liability laws, and as provided on the usual

railroad bills of lading, the railroads are exempted from complete liability only under certain conditions, such as loss, damage or delay caused by:

*Why Rail
Shipments Need
Little Insurance*

1. The "act of God, the public enemy, quarantine, the authority of law" and such events as strikes or riots.
2. The act or default of the shipper or owner, or by requests to hold freight in transit that may be made by a shipper, owner or a person entitled to make such requests.
3. Any defects in or characteristics of the freight itself.

In addition to these general provisions there are special limitations. Railroad companies are not liable for differences in the weights of grain, seed or other commodities caused by natural shrinkage or due to discrepancies in elevator weights. They are not responsible for "deviation or unavoidable delay" resulting from the compression of cotton bales. When freight is shipped on open cars at the request of the shipper, the railroad companies are, in the absence of negligence, limited to loss or damage by fire. Forty-eight hours after notice of arrival has been given the consignee, the carriers' liability for freight becomes that of warehousemen—that is, they are exempted from all liability except in case of gross negligence.

In the past, interstate rail carriers have sometimes limited their liability to fixed maximum amounts in the case of certain commodities, but the Carmack Act of June 20, 1906, amending the Interstate Commerce law of 1887, provided that "no contract, receipt, rule, regulation or other limitation of any character whatsoever, shall exempt such common carrier"; and the Cummins amendment to the same law, which became effective on June 3, 1915, provided that the original rail carrier shall be liable "for the full actual loss, damage, or injury to such property caused by it or by any connecting carrier."

Carriers by water, on the contrary, are not liable to the shippers for losses resulting from any of the main risks encountered in

*When Water Carriers
Are Liable*

water transportation. They are liable only under certain conditions. The Harter Act of February 13, 1893, provides that carriers by water are liable in case of:

1. "Negligence, fault, or failure in proper loading, stowage, custody, care, or property delivery."
2. Failure "to exercise due diligence, properly equip, man, provision and outfit" their vessels.
3. Failure to exercise due care in making

a vessel "seaworthy and capable of performing her intended voyage."

Since the vessel owners are not liable for the principal risks encountered at sea, it follows that shippers are interested in the insurance of their cargoes. They may also desire to insure prepaid or collectable freight moneys. Ocean bills of lading usually provide that "freight prepaid will not be returned, goods lost or not lost" and "that full freight is payable on damaged or unsound goods." Shippers may also desire to insure profits or any other insurable interest.

Marine underwriting as it is known at present had its origin in the ancient form of marine protection known as "loans or bottomry." Many centuries ago

it was the practise to make loans on the security of the

*Origin of
Marine Insurance*

vessel and cargo at high rates of interest, the understanding being that the loan with interest would be repaid only in case the vessel and cargo arrived safely, and that the lender would forfeit both principal and interest in the event of loss. Present-day marine insurance seems to have had its beginning in Italy among the Lombard merchants at the close of the twelfth century. In the fourteenth and fifteenth centuries marine insurance was written in Flanders, Portugal and Spain; in

the early part of the sixteenth century in England; and soon thereafter in all the remaining maritime centers of Europe.

Marine insurance reached its broadest scope in Great Britain, where it has for many years been closely identified with the world-famous institution (or rather institutions) known as Lloyd's. There are two distinct bodies in London which have to do with different phases of marine insurance—the Corporation of Lloyd's and the Society of Lloyd's Register. The former is a marine insurance exchange and a source of marine intelligence. The latter is a ship classification society.

*Lloyd's
Underwriters*

The Corporation of Lloyd's had its origin in a coffee house established by Edward Lloyd in the seventeenth century. The coffee house became the meeting place for merchants and shipping men, and its proprietors conceived the idea of providing them with systematically collected shipping information. Soon marine underwriters, also, began to frequent Lloyd's coffee house, finding it a convenient place for the conduct of a marine insurance business. About 1691, Lloyd moved his coffee house to Lombard Street, and as the amount of underwriting performed there increased in importance the underwriters formed themselves into an asso-

ciation. In 1774 the association of "Lloyd's Underwriters" moved to the Royal Exchange of London where it became the world's chief center of marine insurance. It was incorporated in 1871 as the Corporation of Lloyd's.

Lloyd's does not undertake any marine underwriting as a corporation. It is a great insurance exchange, the individual members of which underwrite marine risks in much the same way that the individual members of a stock or prod-

*How Lloyd's
Operates*

uce exchange—not the exchange as such—buy and sell securities or produce. An insurance broker having a risk to place goes past the rows of tables at which the individual underwriters are seated and places before them a "slip" which contains a statement of the particulars of the risk. If the underwriter accepts he writes his initials and the amount which he accepts on the slip. The broker then presents the slip to others, and a score or more of the underwriters may agree to underwrite for stated amounts, but each accepts for himself only. The broker now presents to the underwriters a so-called "long slip" which contains all the information needed to make out the policy. When the policy is made out it is signed by each of the underwriters who accepted, and the policy

shows the amount for which each is individually liable. A central office greatly facilitating the issuing of policies has very recently been established.

The Corporation of Lloyd's also collects and distributes shipping news, adequate information being essential to intelligent underwriting. Lloyd's has an agent at every important port throughout the world, and as these agents cable news it is immediately passed on to Lloyd's underwriters, to subscribing insurance companies, and, so far as necessary, to the daily press. The publications of Lloyd's are:

1. *Lloyd's List*, which is published daily and contains all shipping news as currently received.

2. The *Index*, in which the information concerning individual vessels as currently published in *Lloyd's List* is posted so that underwriters and subscribers may readily find detailed information concerning any particular vessel in which they are interested.

3. A *Register of Captains*, which contains a detailed record of all the certified commanders of the British marine.

4. A *Record of Losses* or "Black Book."

Originally the work of classifying vessels was conducted by Lloyd's Association along with the collection of shipping news. In

1799 a rival British register was established; and in 1833 the two classification committees came together. In 1834 the annual publication of the joint committee appeared as *Lloyd's Register of British and Foreign Shipping*. The classification body is now known as the Society of Lloyd's Register, and its general committee represents not only Lloyd's, but various underwriting and shipowners' associations and chambers of commerce. It issues rules for the building of vessels, supervises vessel construction throughout the world, fixes the load lines of British vessels, classifies vessels from the standpoint of marine insurance risks and issues annually the large book commonly known as *Lloyd's Register*. *Lloyd's Register and Other Classification Societies*

The Society of Lloyd's Register is the world's chief classification society, but it is not without rivals. One of these is a British society known as the British Corporation for the Survey and Registry of Shipping; and another the Bureau Veritas of France. Both of these are authorized to establish load lines as well as to perform the regular functions of a classification society. Among the other classification societies are the American Bureau of Shipping, the Inland Lloyd's and the United States Standard Steamship Owners',

Builders' and Underwriters' Association in the United States; the Germanischer Lloyd and the Stettiner Register in Germany; the Veritas Austro-Ungarico in Austria-Hungary; the Nederlandische-Vereinigung in Holland; the Norske Veritas in Norway; the Registro Nazionale Italiano in Italy; and the Veritas Hellene in Greece. Plans have recently been made for the establishment of a Japanese classification society.

It is not to be inferred that all marine insurance in Great Britain is confined to the members of Lloyd's Association. Marine insurance companies began to be organized in increasing numbers early in the eighteenth century, and during the nine-

*Marine Insurance
Companies in
Great Britain*

teenth century many large companies arose in London, Glasgow and Liverpool. The companies pay annual subscriptions to Lloyd's so as to gain access to Lloyd's underwriting "room" and to get the information that is filed there, and also to receive copies of the numerous cable messages received by Lloyd's; but these outside companies and the Lloyd underwriters compete.

The two general plans of underwriting—Lloyd's and the British companies—have developed side by side, and together they have made the United Kingdom the center of

about three-fourths of the sea insurance of the entire world.

Marine insurance companies have also been established in many other foreign countries. The principal foreign companies doing extensive marine insurance business in the United States include British, German and Swiss companies; and, on the Pacific coast, also Australian and Chinese companies. Indeed, the foreign companies have, since the early seventies, made rapid progress in competition with the domestic marine insurance companies of the United States.

In addition to the protection afforded by underwriters operating under the Lloyd plan and by insurance companies

not members of Lloyd's, there are various other marine insurance arrangements, as the following:

*Other Arrangements
for Marine Insurance*

1. There has been a tendency on the part of large navigation companies in recent years to protect themselves by self-insurance. Some of them insure their vessels in whole or in part by self-insurance plans; some in addition also insure passengers' baggage and effects and issue policies on cargoes; and others insure themselves particularly against certain special risks that are not covered by such outside insurance as they may carry. Some of the smaller navigation companies also operate

self-insurance plans, but their usual practise—as is also the case with the large steamship companies—is to confine self-insurance to the protection of their vessels, and to permit cargo risks to be covered by Lloyd's underwriters or by marine insurance companies.

2. Another form of self-insurance is provided through mutual shipowners' associations or clubs. Some of the British mutual associations are very large concerns. It is the practise in each of these associations to maintain a committee, which at the end of the year or whenever necessary, ascertains what the association has paid out to its members, and then makes a levy based on each member's tonnage as entered upon the books of the association—the levy being for the sum required to replace the funds that have been paid out. Some shipowners insure their vessels entirely in this way, while others enter a mutual association for the purpose of protecting themselves against special liabilities, such as war risks, not covered in the marine insurance policies which they carry.

3. War risks may be insured in any of the ways mentioned, but because of their special nature and the extraordinary insurance costs or losses which may result from them, provision for national insurance or indemnity is sometimes made. The Bureau of War Risk

Insurance of the United States Treasury Department was created by an act of September 2, 1914, for the purpose of insuring the war risks of vessels, cargoes and freight moving under the American flag. The bureau insures war risks exclusively, marine risks being left to private underwriting concerns. Foreign governments—such as those of Great Britain, France, Sweden, Australia and Japan—have also adopted special plans for insurance against war risks.

The development of marine insurance in the United States has been confined largely to independent insurance companies. The Lloyd's plan of underwriting has often been adopted but never reached the position of importance that it has attained in England.

*Marine Insurance in
the United States*

The first general period of the development of marine insurance in the United States extended roughly to the year 1793, and was characterized by personal underwriting. Individuals or partnerships opened marine insurance offices in Philadelphia as early as 1721 and in New York in 1759, but the underwriters of these ports and of Boston only partially supplied the demand for marine insurance in America. Most of the American risks were insured by London underwriters.

The second period extended from 1794 to the Civil War, and was characterized by the rise of numerous American marine insurance companies. The first of these companies was chartered by the State of Pennsylvania in 1794 and prior to 1800, 32 companies were incorporated in the United States. The American companies grew in numbers and were very prosperous during the years 1794 to 1805; but were less prosperous in the succeeding years until 1815, because of the heavy losses resulting from the destruction of American vessels and trade during the later years of the Napoleonic wars and during the War of 1812. After the close of these wars their business did not flourish until 1840, because of the severe rivalry of the many companies engaged in underwriting. They were very prosperous, however, during the 20 years preceding the outbreak of the Civil War.

The third and last period in the history of marine insurance in the United States began with the Civil War. It has been one of steady and disheartening decline. Only the strong companies were able to bear the strain of the four years of the Civil War, during which many American merchant vessels were destroyed, transferred

*How the Civil War
Affected
American Insurance*

to foreign flags, taken over by the government for naval and military uses, or were tied up in their home ports because of the prevailing war risks and the inability to obtain cargoes in competition with neutral foreign vessels.

After the Civil War the American deep-sea merchant marine continued to decline, for reasons already stated, thus making it the more difficult for American marine insurance companies to maintain their business. Foreign insurance companies, moreover, began to establish branches in the United States during the early seventies and actively competed against the American companies. The foreign companies—particularly those of Great Britain—had the advantage of a large amount of home business resulting directly from the growing shipping industries of their respective countries.

Such marine insurance in the United States as is not at present in the hands of foreign underwriters and insurance companies is provided mainly by nine American companies. Most of these domestic companies depend primarily upon their fire insurance business, only one of the nine principal companies conducting an exclusively marine insurance business. Some marine insurance is also provided by smaller American insurance companies and under-

writers; some by the navigation companies through self-insurance funds; while the war risks are carried in part by the United States Bureau of War Risk Insurance.

Navigation companies and international express companies or forwarders sometimes obtain marine insurance from insurance companies and underwriters for the shippers who deal with them. Many shippers, however, obtain their insurance through brokers or directly from insurance companies. They commonly make application for insurance on regularly provided forms through marine insurance brokers who handle all the necessary details.

The perils or risks against which marine insurance protection is obtained by vessel owners and shippers may be classified as follows:

Five Classes of Marine "Perils" or "Risks"

I. So-called "perils of the sea," which include casualties resulting from storms, fogs, lightning, stranding; wrecks caused by icebergs, rocks, derelicts, or other obstructions; foundering; collision with other vessels or with sea walls, jetties or other marine structures. In general the insurance is against the perils which are of the sea. Collisions between vessels are important to vessel owners not only because of losses attaching to their own vessels, but also because

the vessel owners at fault may find themselves liable for damages done to other vessels. "Perils of the sea," however, do not include ordinary wear and tear caused by wind and waves, or the inherent "vice" or defect of insured properties. They do not include occurrences which are inevitable to all navigation, but only such as are the result of accident.

2. Fire risks which are covered by marine insurance policies.

3. Jettison, that is, the sacrificing in time of need of a portion of the cargo or of the vessel's property for the common good of the remainder.

4. Barratry, which includes all forms of knavery and fraud committed by the master of a vessel to benefit himself or the owners, such as the scuttling, wilful damaging or destruction, or the wilful abandonment of a vessel, and also the theft of cargo by officers or crew.

5. Loss resulting from men-of-war, enemies, pirates, rovers, thieves, reprisals, takings at sea, arrests, restraints, and similar perils, which at present refer mainly to "war risks," may be insured.

Policies may contain a clause which covers "all other perils, losses and misfortunes that have or should come to the hurt, detriment

or damage of the vessel or cargo," but this clause has been interpreted to include only such other perils as are similar to those which are especially stated in the preceding clauses of a policy.

The losses or kinds of liability which result from the perils or risks mentioned above and against which marine insurance protects the

*Marine Losses
Against Which
Owner is Protected*

vessel owner and shipper may be divided into four chief groups:

1. The loss incurred may be a "total loss" of vessel, cargo, freight, profits, advances or other insurable interest. Such a loss may be "actual" or "constructive." Actual loss occurs when the insured property is actually lost, completely destroyed, entirely removed from the possession of the owner, or so badly damaged as to be of practically no value. Constructive loss occurs when the insured property fails to arrive at destination, when the cost of repairing and forwarding it to destination amounts to more than the property is worth, or when the vessel and cargo are so situated that the expense of saving them would exceed their value after the expenditure was made.

Total Loss

2. In contrast with total losses, a partial loss may occur, such a loss being settled in accordance with either the "general average"

or "particular average" rules. General average is based upon the maritime laws of nations which provide that where any interest is voluntarily and deliberately sacrificed for the common safety of the vessel, cargo freight or other remaining interests, the loss sustained shall be prorated among all benefited interests—that is, it shall be settled in accordance with the "general average" rule. When, for example, cargo, masts or rigging are jettisoned, when the vessel is voluntarily stranded for the common good, or when water losses are suffered in quenching a fire, all benefited parties are required to bear a proportionate share of the resulting loss.

*"General
Average"*

3. A partial loss may also result from an accident instead of from an order given by the vessel's master. The vessel may be damaged in a storm or collision, or the cargo on board ship may be damaged by accidentally coming in contact with sea water, by deteriorating from some inherent defect or characteristic of the cargo, or by being crushed during a storm. In case of such partial losses the so-called "particular average" rule is applied, that is, only those especially interested in the damaged properties are obliged to bear the loss incurred. Policies in many instances cover

*"Particular
Average"*

such losses only in case they exceed a specified percentage of the value of the property insured.

4. A partial loss may also take the form of salvage, which is the reward granted by law to those who save life and property at sea. Salvage is usually apportioned over the values of the various interests saved, as in the case of general average; and, in case those interests are insured, is receivable from the underwriter in the same manner.

Essential Features of Policies and Contracts The essential features of a marine insurance policy are that the policy in order to be legally enforceable must (1) contain a contract of indemnity; (2) be made in good faith; (3) refer to a defined proportion of the property insured; (4) indicate that the insured has a genuine interest in the property covered by the contract; (5) provide insurance against contingencies, definitely expressed in the contract, to which the property insured is actually exposed; and (6) be issued in return for a definite consideration.

Not all marine insurance policies adhere to all of these conditions, for policies are sometimes issued when the holder does not possess a definite insurable interest in the property covered by the policy. Such policies are

variously referred to as wager, honor, or "P.P.I." policies, the term P.P.I. indicating that the parties concerned agreed that the policy will be accepted as "proof of interest." Policies of this kind are not legally collectable and rest upon the honor agreement existing between underwriter and insured.

The validity of a marine insurance contract depends upon compliance with its so-called warranties and representations. Both written warranties and representations constitute statements or special agreements in the policy, the chief difference between them being the strictness with which they must be fulfilled. Written warranties are agreements such as those which prohibit the insured vessel from carrying certain commodities, or from navigating a certain route, or which require it to sail within prescribed dates, or endeavor to relieve the underwriters from certain losses for which they would be liable under the usual provisions of a marine insurance policy. Representations are less formal and severe. In the case of warranties "absolute and literal" compliance is necessary; while "equitable and substantial fulfilment" is sufficient in the case of representations.

*Warranties and
Representations*

Certain "implied" warranties underlie all marine insurance and are of such importance

that they are quite as generally acknowledged as the foregoing essentials of a marine policy. They are: (1) that at the time of starting the vessel must be seaworthy in all respects for the intended voyage; (2) that the vessel shall proceed in the usual way, directly and without deviation or unnecessary delays, from the port of sailing to the port of destination; and (3) that the adventure shall be legal in all particulars.

It is a common practise to issue marine insurance certificates against policies, so as to avoid the need of issuing various copies of the policy or of issuing a separate policy each time a shipment is made. A shipper may, for example, purchase a certain amount of insurance and then protect consignees, bankers, international exchange brokers or creditors by issuing insurance certificates which, when properly countersigned, take the place of the policy.

*Marine Insurance
Certificates*

There are many different forms of marine insurance policies in the various maritime countries of the world, and in some instances many types of policies are issued within a particular country. In the United States, for example, no standard form of policy is prescribed by law, and while the policies issued bear many points

Types of Policies

of similarity, the underwriters have not voluntarily adopted a single standard form. Most policies bear evidence of the influence exerted by Lloyd's form of marine policy which was adopted in 1779 and continues to be the standard form of contract used by most British underwriters.

A large variety of policies are issued in the United States, each title designating the particular kind of property or interest insured. Lloyd's policy is so arranged that it may be used to insure vessels or cargoes or both, but distinct vessel and cargo policies are frequently issued in the United States. Separate freight policies are also issued at times, although freight moneys are more commonly provided for in the policies covering the vessel or cargo, in the same way that profits, advances, and other insurable interests are, when insured, commonly included in the policies covering the vessel or cargo.

The wide range of marine policies issued in the United States is shown in part by the enumeration of policies as "vessel," "vessel and freight," "steamboat only," "tug," "ferry-boat," "lake vessel," "towboat," "hull," "lake hull," "towboat hull," "inland hull," "Atlantic barge," "schooner," "lighterage," "yacht," "canal hull," "strand-

ing and collision only," "whaling and fishing," "builders," "blanket policies on hulls," "blanket," "hull and cargo," "vessel and cargo," "river cargo," "lake cargo and vessel," "cargo on wharf boats," "blanket policies on hull and cargo," "cotton," "coal," "flour, feed and other mill products," "live stock," "lumber," etc. The differences between these policies lie in the detailed adaptations to meet particular conditions, rather than in their general form and essential features.

The United States Bureau of War Risk Insurance issues three general types of policies covering war risks on vessels, on freight and on cargo, respectively.

The many types of marine policies already mentioned may be grouped into two classes as regards the sum insured. That is, they may be either "open" or "valued," the latter stipulating a definite sum as the value of the insured interest, while the former leaves the value to be ascertained in case of loss. They may also be grouped, as regards the vessel on which the insured interest is placed, into "floating" and "named" policies. A floating policy is one which does not mention the vessel's name, the insured being unable to supply its name until after protection is granted; while a named policy defi-

No. 3
CARGO

No. _____

The United States of America



TREASURY DEPARTMENT
BUREAU OF WAR RISK INSURANCE
WASHINGTON, D. C.

SAMPLE

on account of whom it may concern

In case of loss, to be paid
in funds current in the United
States to

Do make insurance and cause

to be insured
at and from

OWN INSURED

Dollars.

Upon _____ per the Vessel

called the _____ or by whatever other name or names the said vessel is or shall be named or called, beginning the adventure upon the said goods and merchandise from the loading thereof on board the said vessel on shore, and shall so continue and endure during her abode there and until the vessel with her goods and merchandise shall be arrived at as above and be there discharged and safely landed. The said cargo, her or as much as concerns the insured, by agreement between the insured and the insurers in this policy, is and shall be valued at \$.....

Touching the adventure and profits which the insurer is obligated to bear, and does take upon itself, they are of men-of-war, letters of marque and commissions, surprisals, takings of sea, arrests, restraints and detentions of all kings, princes, and peoples, of what nature, condition, or quality soever, and all consequences of hostilities or war-like operations, whether before or after declaration of war.

Warranted not to abandon in case of blockade and free from loss arising from an attempt to evade blockade, but, in the event of blockade, to be at liberty to proceed to an open port and there and the voyage.

Warranted not to abandon in case of capture, seizure, or detention until after condemnation.

Warranted free from any claims for interest, loss of market or damage by deterioration due to delay.

This policy does not extend to or cover absolute contraband of war or conditional contraband of war when the articles constituting such conditional contraband are destined for the use of the armed forces or of a government department of a belligerent state, or are consigned to the authorities of a belligerent state, or is a contraband established in a belligerent enemy state, or as a matter of common knowledge, supplies articles of this kind to a belligerent state, or are consigned to a belligerent or other place serving as a base for the armed forces of a belligerent.

And in case of war or hostilities, it shall be lawful to the insured, their factors, servants, and assigns, to sea, land and travel by, to and about the defense, safeguard, and recovery of the said goods and merchandise, or any part thereof, without prejudice to this insurance, to the charges whereof the insurer will contribute according to the rate and quantity of the sum insured. And it is especially declared and agreed that no acts of the insurer or insured in recovering, saving, or preserving the property insured, shall be considered as a waiver or acceptance of abandonment; having been paid the consideration for this insurance, by the insured at _____ assign, at and after the rate of _____ per cent.

It is agreed that this insurance shall not be vitiated by a deviation from the voyage provided the same be communicated to the Bureau of War Risk Insurance as soon as known to the insured and an additional premium paid if required.

Warranted sailing under the American flag.
In the event of loss and claim, prompt notice should be given the Bureau of War Risk Insurance. Claims will be paid within thirty days after complete proofs of interest and loss have been filed with the Bureau.

IN WITNESS WHEREOF, The United States of America has caused this policy to be signed by its Secretary of the Treasury, but it shall not be valid until countersigned by William C. De Looy or J. Dennis B. Porter.

Wm C De Looy

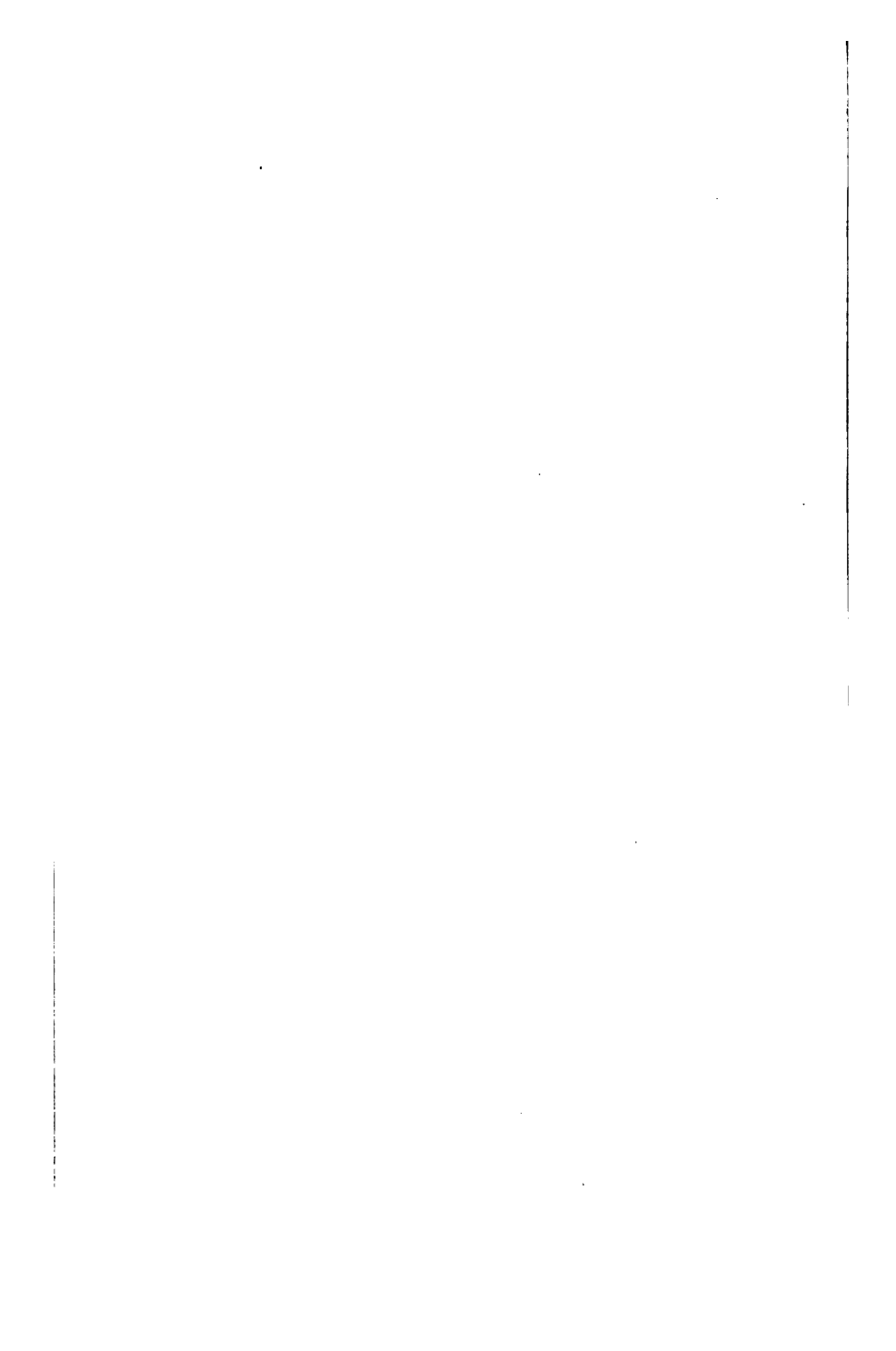
SECRETARY.

Countersigned at Washington, D. C., this _____ day of _____, 191

DIRECTOR.

CARGO POLICY, WAR RISK INSURANCE

Issued by the Bureau of War Risk Insurance of the United States Treasury Department, under Act of September 2, 1914. The war risks on vessels and freight may also be insured.



nitely specifies the vessel by name. Policies may be grouped, as regards the duration of the risk insured, into "voyage" and "time" policies, the latter providing insurance for a stipulated period of time, and the former for a particular voyage. "Interest" policies, as was previously stated, are, moreover, to be distinguished from "wager" policies.

Marine insurance contracts often contain many subsidiary or supplementary clauses, some of which are expressed as warranties. Some of these clauses are generally found in the policies issued in the United States while others are indorsed as a result of the conditions arising in connection with a particular shipment or voyage, or from the special wishes of either the insured or underwriter. Among such clauses are the subrogation clause which entitles the underwriter to all the rights and remedies which the insured could have exercised in respect to any loss; the assignment clause, which provides that the insurance may be effected for another, or that the insured interest may legally change hands; and the reinsurance clause, which permits the underwriters to protect themselves against heavy loss through reinsurance. Policies may also contain clauses which limit the amount collectable

*Supplementary
Clauses in
Contracts*

in case of particular average losses unless they exceed an agreed percentage of the insured interest's value; they may make such losses contingent upon agreed risks or perils; or they may exclude particular average losses entirely.

A very important clause is the so-called "collision clause." This came into general use after 1836, when a British court decided that under the usual marine insurance contract an underwriter was not liable for damages caused by an insured vessel to another vessel through collision. The special clause was then added so as to make the underwriter liable for all or part of the loss suffered by the other vessel in such an accident. Other supplementary clauses are the "lost or not lost" clause, under which the underwriter is liable regardless of the condition of the vessel or cargo at the time when the insurance is effected; and the "sue and labor" and "waiver" clauses, which govern the action taken and expense incurred to prevent or reduce losses.

A policy may contain various clauses governing the procedure in case of "other insurance upon the same subject-matter"; exempting the underwriter from liability for losses occasioned by certain defined perils; facilitating the adjustment of claims; and

rendering the policy void in case of misrepresentation or concealment of material facts. A policy may contain any number of miscellaneous clauses designed to adapt it to the particular needs of the insured, to protect the underwriter, or to accomplish some particular end.

SUGGESTIONS AS TO FURTHER
READING

From the numerous publications treating the subject of transportation and allied topics, the following list has been chosen as of value to the student who is interested in a more detailed study of shipping and its problems:

Clapp, E. J.—*The Port of Boston: A Survey of North Atlantic Seaports.*

Curran, J. P.—*Freight Rates: Studies in Rate Construction.*

Goode, J. P.—*The Development of Commercial Ports.*

Gow, William—*Marine Insurance.*

Hepburn, A. B.—*Artificial Waterways and Commercial Development.*

Hough, B. O.—*Ocean Traffic and Trade.*

Huebner, G. G.—*Economic Aspects of the Panama Canal in American Economic Review*, December, 1915.

Huebner, S. S.—*Property Insurance.*

Johnson, E. R.—*Ocean and Inland Water Transportation.*

Elements of Transportation.

Panama Canal Traffic and Tolls.

Measurement of Vessels for the Panama Canal.

Johnson, E. R., and collaborators—*History of Domestic and Foreign Commerce of the United States.*

Johnson, E. R., and Huebner, G. G.—*Railroad Traffic and Rates.*

Johnson, E. R., and Van Metre, T. W.—*Principles of Railroad Transportation.*

Keiler, H.—*American Shipping, Its History and Economic Condition.*

Kirkaldy, Adam W.—*British Shipping, Its History, Organization and Importance.*

Martin, F.—*History of Lloyd's and of Marine Insurance in Great Britain.*

McPherson, L. G.—*Transportation in Europe.*

Railroad Freight Rates in Relation to the Industry and Commerce of the United States.

Moulton, H. G.—*Waterways versus Railways.*

Owen, D.—*Ocean Trade and Shipping.*

Ripley, W. Z.—*Railroads: Rates and Regulations.*

Smith, J. R.—*The Ocean Carrier.*

Urquhart, G. D.—*Dues and Charges on Shipping in Foreign Ports.*

The following publications of the Federal Government may also be of interest:

Bureau of Corporations—*Transportation by Water in the United States.*

Bureau of the Census—*Transportation by Water in 1906.*

Bureau of Crop Estimates—*Inland Boat Service: Freight Rates on Farm Products and Time of Transit on Inland Waterways in the United States.*

Bureau of Foreign and Domestic Commerce
—*Commerce and Navigation of the United States.*

Navigation Laws of Leading Maritime Countries.

Ports of the United States.

Commissioner of Navigation—*Annual List of Merchant Vessels of the United States.*

Annual Reports.

Navigation Laws of the United States.

Committee on the Merchant Marine and Fisheries—*Report on Steamship Agreements and Affiliations in the American Foreign and Domestic Trade.*

QUIZ QUESTIONS

I

1. What percentage of our overseas exports were carried by American ships in 1915?
2. Give the figures of decline in American merchant tonnage from 1861 to 1910.
3. What are the four groups of vessels, classified according to motive power?
4. In what trade does the sailing vessel operate?
5. How are vessels classified according to deck arrangement and structural material?
6. Define the four kinds of vessel tonnage.
7. Define the four kinds of cargo tons.

II

8. Name the important countries touched by each of the eight great ocean routes.
9. Describe each of the three kinds of ocean freight services.
10. Who customarily mans and provisions a ship that is plying on charter?
11. What are the two kinds of local railway bills of lading? What is a through export bill of lading?
12. How are ocean bills of lading prepared? What is a parcel receipt?
13. What is meant by a "clean" bill of lading?
14. What are the so-called "ship's papers"?

III

15. What two types of agreements exist between the regular ocean lines?
16. What is a "fighting ship"?
17. What are the advantages of ocean conferences?

18. Mention eight factors that affect ocean freight rates.
19. How does tramp competition protect the shipper from exorbitant rates on the part of the regular lines?
20. Why is distance a minor factor in affecting ocean rates?

IV.

21. To what extent does the Federal Government regulate the services and charges of ocean carriers?
22. How do the Sherman Anti-trust Act and the Panama Canal Act apply to combinations, conferences or agreements of ocean carriers?
23. What are the important provisions of the Seamen's Act?
24. With which branch of the Government will the manufacturer deal most frequently in exporting his products?

V

25. What difference exists between the rates quoted on classified freight between Chicago and New York on the all-rail route, the lake-and-rail route and the rail-and-ocean route?
26. What is a differential route? Give an example.
27. Give an example of one of the general port differentials that are in force; of a commodity port differential.
28. Give one example each of how special export rates favor Atlantic ports, Gulf ports, Pacific ports.
29. Why is the "all commodities" through rate to Oriental and Australian points of special interest?
30. Mention eight incidental charges that may be made by the railroads.
31. In what three special export activities have some of the railroads recently engaged?

VI

32. What are the principal items of the enormous amount of shipping that is done on the Great Lakes?
33. In what three ways does lake traffic enter export trade?
34. What is the size of our coastwise shipping?
35. Describe the four ways in which coastwise shipping contributes to export traffic.
36. Differentiate between the two classes of Pacific coastwise shipping.
37. Where are the six groups of canal systems located?

VII

38. What are the four main types of ports?
39. What are the two functions of an ocean terminal? Class the terminal facilities in three groups.
40. Give several instances demonstrating that coordination is the problem of the ocean terminal.
41. What are the various charges, taxes and fees that are levied at a port?
42. How may ports be classed as regards the form of administration and the ownership of port properties?

VIII

43. Differentiate between the need of insurance on rail and on ocean shipments.
44. In what three cases are ocean carriers liable to shippers for losses?
45. What was the origin of marine insurance?
46. Mention the various activities in which Lloyd's engages.
47. What is the status of marine insurance in America as regards the nationality of the companies operating?

48. What are the six perils or risks against which marine insurance may be obtained?

49. What is "general average," "particular average"?

50. Mention the various types of marine insurance policies, and the six features essential to a policy in order that it may be legally enforceable.

OCT 31 1916

